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PHILIP P. CALVERT, Ph.D., Editor.
E. T. CRESSON, Jr., Associate Editor.

HENRY SKINNER, M.D., Sc.D., Editor Emeritus.

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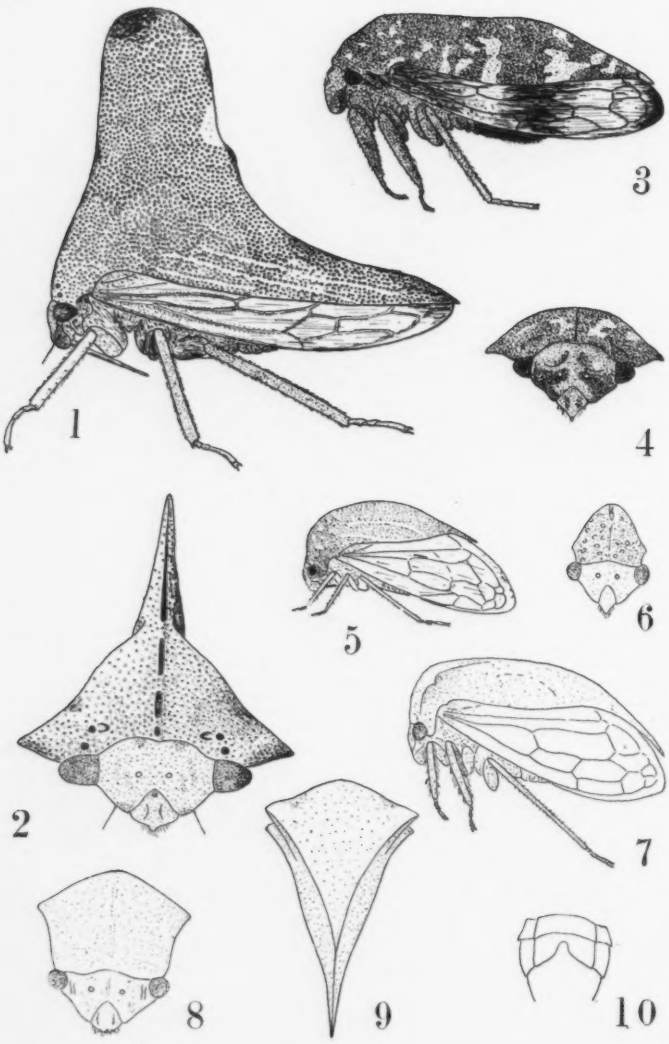


NEW MEMBRACIDAE—FUNKHOUSER.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XXVI. MARCH, 1915. NO. 3.

CONTENTS:

Funkhouser—New Membracidae from the United States (Hem., Homop.) 97
Weiss—Additions to Insects of New Jersey 101
Hornig—A new Food Plant for Ph. cynthia; Sugaring interfered with by Leucania unipuncta (Lep.)..... 107
Malloch—A new Species of Neogaurax (Chloropidae, Dipt.)..... 108
Bibliography of Sir John Lubbock..... 108
Ewing and Stover—New Parasitic Mites (Acarina)..... 109
Townsend—Lucilia morilli T.—A Correction (Dipt.)..... 114
Welch—The Lepidoptera of the Douglas Lake Region, Northern Michigan..... 115
Bethel—Sympetrum corruptum, a Dragonfly, at a High Altitude (Odon.) 119
Woodworth—Classification of Orders of Insects..... 120
Hornig—Mosquito Extermination Work in Philadelphia, Pa..... 123
Dietz—A Preoccupied Specific Name in Tipula (Dipt.)..... 125
Stoner—Notes on Two Beetles Reared from Dead Wistaria Sticks (Col.) 126
Girault—Fragments on North American Insects—VIII (Hymen., Dipt., Lep., Orth., Col.)..... 127
Identification of Specimens..... 133
Editorial—Reports of the Doings of Societies..... 134
Change of Addresses..... 135
Hungerford—A Parasite of the Cottonwood Borer Beetle (Col., Dip.)..... 135
Grinnell—Meetings in Los Angeles..... 136
Entomological Literature..... 136
Doings of Societies—Newark Ent. Soc. (Lep., Hem.)..... 139
Amer. Ent. Soc. (Lep.)..... 142
Ent. Section, Acad. Nat. Sci. Phila. (Lep., Dipt., Odon., Orth.)..... 143

New Membracidae from the United States (Hemip., Homop.).

By W. D. FUNKHOUSER.

(Contribution from the Entomological Laboratory of Cornell University.)

(Plate III)

1. **Telamona alta** sp. nov. (Plate III, Figs. 1 and 2.)

This species bears the highest crest of any *Telamona* hitherto described. The crest is erect and tongue-like, suggesting the forms of Butler's genus *Glossonotus,* but is placed well behind the humeral angles. The species should be easily recognized by the high crest and prominent humeral angles.

Ferruginous brown mottled with black. Pronotum bearing compressed dorsal crest twice as high as wide; apex rounded. Humeral angles produced.

Head yellowish-brown, finely punctate, punctures yellow at base of head, black at apex, lorae roughly sculptured; base of head broadly sinuate; ocelli yellow, nearer to each other than to the eyes; eyes

deep brown, wider than high; clypeus with deep longitudinal fossa on each side of median ridge, depressed circular pit at base.

Pronotum finely punctured with brown and black, not pubescent; two black circular spots and a U-shaped depression above each eye; humeral angles prominent, triangular, extending beyond the eye to a distance equal to the width of the latter; percurrent median carina alternately black and white before crest; crest twice as high as wide, arising behind lateral angles, straight and erect, much compressed, anterior margin almost straight, slightly sloping at base, apex rounded, posterior margin slightly step-like in middle with white spot above step, margin irregularly marked with shining brown, sides of crest roughly black-punctured, giving the whole a dark appearance; posterior process slightly ridged, tectiform, gradually acute, extending just beyond tips of tegmina.

Tegmina hyaline, about half-concealed by the pronotum, tips fuscous, base and costal area lightly punctate, veins prominent with punctured borders.

Under surface of body yellowish with white pubescence. Legs ferruginous; pulvilli bright red.

Type—Female. Length, 10.5 mm.; width between tips of humeral angles, 7 mm.; height from lateral margin of pronotum to tip of dorsal crest, 7 mm.

Locality: Spring Creek, Georgia. Collected by the author July 20, 1912.

2. **Carynota maculata** sp. nov. (Plate III, Figs. 3 and 4.)

Size a little smaller than *C. mera* Say to which it seems most nearly related, but differs from that species in color, in form of body and in shape of pronotum. Should be recognized by the black color with yellow markings, the low anterior pronotum, the flattened dorsum, and the very prominent swellings at the base of the head.

Dorsum not laterally compressed; rounded before and flattened above. Wings with apical areas sessile, their bases truncate. Color black with irregular markings of orange yellow.

Head convex, slightly wider than long, yellowish mottled with black, roughly sculptured, finely punctate, sparsely pubescent; two large subglobular protuberances on front of head, one on each side of median line at base; ocelli situated meso-cephalad of protuberances and nearer to each other than to the eyes; eyes brown and not prominent; clypeus small, pilose.

Pronotum black with irregular patches of yellow, densely and finely punctate; very low in front, flattened on dorsum, somewhat swollen

behind middle; faint percurrent median ridge; humeral angles blunt and rounded; posterior process thick and tectiform, almost reaching apex of tegmina.

Tegmina smoky hyaline, brown and punctate at base, a brown patch in middle and at tip; veins prominent and slightly raised. There is a variation in the cross-veins, one specimen having two cross-veins between media and cubitus while the type specimen shows but one.

Under surface of body yellow; sides of meso- and metathorax black; sheath of ovipositor ferruginous. Legs shining black-brown with fine yellow pubescence; apex of posterior tibiae slightly ferruginous.

Type—Female. Length, 8.5 mm.; width, 4.5 mm.

Type locality: Jacksonville, Florida.

Described from specimens collected by Mr. L. H. Weld at Jacksonville, Fla., April 14, 1914, and at Gainesville, Fla., April 23, 1914.

I am indebted to Mr. Harold Morrison for these specimens which he very kindly gave me from his own collection.

3. **Stictocephala minuta** sp. nov. (Plate III, Figs. 5 and 6.)

This is probably the smallest North American species of this genus. It may be recognized by the small size, by the characteristic milky spots and lines on the pronotum, and by the fact that the humeral angles do not project outward as far as the eyes.

Uniform yellow with milk-white spots and lines. Thickly and densely punctate, sparingly pilose. Pronotum arcuate. Posterior process slender and somewhat fuscous. Eyes prominent. Tegmina and wings entirely hyaline.

Head orange-yellow, translucent, smooth, slightly marked with greenish-white; clypeus extending for half its length beyond line of lorae, pilose; ocelli white with border of brilliant red, somewhat nearer to each other than to the eyes; eyes large, prominent, extending beyond humeral angles, brown with red borders.

Pronotum compressed; narrow and convex in front; densely punctate; mottled in front with irregular white spots sometimes slightly tinged with green; humeral angles rounded, only slightly produced; median percurrent carina almost obsolete in front; dorsum compressed, sides of pronotum marked with two white lines; posterior process suddenly acuminate, narrow, sharp, extending beyond internal angle of tegmina.

Tegmina hyaline, very slightly punctate at base, extreme apical border faintly fuscous.

Under surface of body yellow, abdomen compressed laterally. Legs yellow; front tarsi and claws slightly ferruginous; apices of hind tibiae with very small black spines.

Type—Male. Length, to tip of abdomen, 3.4 mm.; to apex of tegmina, 5.2 mm. Width between humeral angles, 1.8 mm.

Locality: Spring Creek, Georgia.

Described from one specimen collected by the author July 22, 1912.

4. **Ceresa occidentalis** sp. nov. (Plate III, Figs. 7, 8, 9 and 10.)

Near *C. brevitylus* Van Duzee, but more robust, suprahumerals shorter and blunter, and without the black markings on pectoral sclerites or femora. May be recognized by the low, broad pronotum, the blunt, rounded clypeus, and the very convex metopidium.

Bright green, becoming yellowish in cabinet specimens. Form robust, metopidium convex, suprahumeral horns short and stout, posterior process slender and decurved, clypeus rounded. Punctate but not pubescent.

Head yellow-green, roughly sculptured, longitudinal striae near eyes, very finely punctate; clypeus rounded at apex, continuing lateral margins of lorae, a longitudinal impression near each lateral angle, tip densely pilose with white hairs; ocelli translucent with orange borders, situated slightly below a line drawn through center of eyes, almost equidistant from each other and from the eyes; eyes brown, extending beyond sides of pronotum but not as far as tips of humeral angles.

Pronotum green, densely and coarsely punctate, not pubescent; ascending nearly straight above head, convex between suprahumeral horns, feebly arcuate in middle, dorsum somewhat flattened, semicircular impression not prominent; median carina percurrent; humeral horns short and blunt, extending almost directly outward and at tips slightly backward, not at all upward; front of pronotum having long, transverse, smooth, irregularly-shaped areas dorso-mesad of eyes, these areas yellowish and shining; posterior process long, slender, sharp, much decurved, reaching beyond tip of abdomen and more than half way from internal angle to tip of tegmen.

Tegmina clear hyaline; lightly punctate at base, veins greenish. Under surface of body yellow; last ventral segment of female broad and deeply, roundly notched; sheath of ovipositor greenish. Legs uniform greenish yellow with long white hairs; tarsi and claws somewhat ferruginous.

Type—Female. Length 6.5 mm.; width, 3.6 mm.

Locality: Imperial Co., California. Collector: E. O. Essig.

I am indebted for the specimens on which this species is described to Mr. E. O. Essig, of Sacramento, who has very kindly supplied me with some interesting California material.

EXPLANATION OF PLATE III.

Fig. 1. *Telamona alta* sp. nov. (Lateral view)
2. *Telamona alta* sp. nov. (Cephalic view)
3. *Carynota maculata* sp. nov. (Lateral view)
4. *Carynota maculata* sp. nov. (Cephalic view)
5. *Stictocephala minuta* sp. nov. (Lateral view)
6. *Stictocephala minuta* sp. nov. (Cephalic view)
7. *Ceresa occidentalis* sp. nov. (Lateral view)
8. *Ceresa occidentalis* sp. nov. (Cephalic view)
9. *Ceresa occidentalis* sp. nov. (Dorsal view)
10. *Ceresa occidentalis* sp. nov. (Last ventral segment, female.)

Additions to Insects of New Jersey.

By HARRY B. WEISS, New Brunswick, N. J.

Since the publication of the 1909 Report of the New Jersey State Museum containing "The Insects of New Jersey" by Dr. John B. Smith, the following additional species have come to light, the records of which have been taken from ENTOMOLOGICAL NEWS, Bulletins of the Brooklyn Entomological Society, Reports of the New Jersey Agricultural Experiment Station, Transactions of the American Entomological Society, Bulletins of the Maine Agricultural Experiment Station, publications of the U. S. Bureau of Entomology, Proceedings of the U. S. National Museum and personal observations. Thanks are due to Mr. C. A. Frost and Mr. Dury for determinations made in the Coleoptera and to Mr. C. H. Richardson for indicating the sources of most of the records in the Hymenoptera. Credit is given in the text to the collectors who have been kind enough to send me their new records.

Order NEUROPTERA.

Conwentzia angulata Navas. Westfield, Aug. 31. de la Torre Bueno.

Order TRICHOPTERA.

Neuronia smithi Banks. Lakehurst, July 4. Englehart.

Order ODONATA.

Enallagma recurvatum Davis. Lakehurst, June 28, 1913. W. T. Davis.

Libellula exusta deplanata Rambur. Woodbury, May 14, 1912. P. Laurent.

Order HOMOPTERA.

Telamona querci. Summit. Schott.

Cyrtolobus tuberosus. Summit. Schott.

Phylloscelis atra Germ. Harrisia, New Egypt. Three forms: black, long-winged; black, short-winged; brown, short-winged. Injurious to cranberry. H. B. Scammell.

Xestocephalus tessellatus Van D. Newark. E. L. Dickerson.

Chlorotettix galbanata Van D. Newark. E. L. Dickerson.

Trioza magnoliae Ashm. Rutherford, August 18, on bay trees.

Phylloxera foveola Pergande. College Farm, Highland Park and other parts of state. Common on leaves of hickory. C. H. Richardson.

Pseudococcus pseudonipae Ckll. Occurs in greenhouses on *Kentia* sp. H. B. Weiss.

Lecanium corni Bouche. Rutherford, Elizabeth, Riverton. On boxwood in nurseries. Not common. Probably introduced from Holland. H. B. Weiss.

Saissetia oleae Bern. In greenhouses on orange and lemon. H. B. Weiss.

Hemichionaspis aspidistrae Sign. In greenhouses on ferns and *Aspidistra.* H. B. Weiss.

Diaspis bromeliae Kern. In greenhouses on pineapple. H. B. Weiss.

Aspidiotus britannicus Newst. In greenhouses on bay trees. H. B. Weiss.

Aspidiotus tsugae Marlatt. Rutherford, March, 1914, on Japanese hemlock. Introduced from Japan. H. B. Weiss.

Chrysomphalus tenebricosus Comst. Rutherford, Nov., 1912. H. B. Weiss. On red maple.

Ischnaspis longirostris Sign. Montclair, on palms in greenhouse. H. B. Weiss.

Pseudaonidia paeoniae Ckll. Riverton, Princeton. On Japanese azaleas. Not common. Probably introduced from Japan. H. B. Weiss.

Targionia biformis Ckll. In greenhouses on orchids. H. B. Weiss.

Icerya purchasi Mask. In greenhouses on *Acacia* sp. H. B. Weiss.

Ceroplastes cirripediformis Comst. In greenhouses on citrus trees. H. B. Weiss.

Ceroplastes floridensis Comst. In greenhouses on citrus trees. H. B. Weiss.

Order HEMIPTERA.

Banasa sordida Uhl. Madison. Schott.

Lygidea mendax Reut. College Farm, High Bridge, Bridgeton and other parts of state. False apple red-bug.

Corythuca marmorata Uhl. Vineland, July 21. E. W. Stafford.

Ranatra kirkaldyi Bno. Totowa, July. Wintersteiner.

Order ORTHOPTERA.

Periplaneta australasiae Fabr. So. Orange, May 21, 1914. In greenhouse. H. B. Weiss.

Order COLEOPTERA.

Cercyon lateralis. Staten Island, May 25, 1908. Davis. Probably occurs in New Jersey.

Sunius discopunctatus Say. Vineland, March 2. H. B. Weiss.

Baeocera concolor Fab. Vineland, March 2.

Phalacrus consimilis Marsh. Vineland, March 2.

Coccinella transversoguttata Fabr. Malaga, April 29, 1911. H. W. Wenzel.

Scymnillus aterrimus Horn. Whitesbog. H. B. Scammell.

Litargus nebulosus Lec. Vineland, March 2.

Sandalus niger. N. J. Palisades. Nicolay.

Agrilus crinicornis Horn. Newark. H. B. Weiss.

Agrilus masculinus Horn. Newark. H. B. Weiss.

Trichodes nuttalli Kirby. Red Bank, July 4, 1908. Kaeber.

Dinoderus punctatus Say. Vineland, May 4. H. B. Weiss.

Aphodius haemorrhoidalis. Snake Hill, Paterson, under cow manure. Wintersteiner.

Phytonomus melus Fabr. The clover weevil. Ramsey, Hewitt, Lake Hopatcong, Newfoundland, Rahway, from late May to end of July. Springfield. E. A. Bischoff.

Eucactophagus graphipterus Champion. Summit. One specimen only in an orchid house. H. B. Weiss.

Myelophilus piniperda Linn. Rutherford, Sept., 1913. T. J. Headlee. European pine beetle.

Order LEPIDOPTERA.

Papilio rutulus Bdv. Newark, August 11, 1908. L. Doerfel. Probably an accidental visitor.

Basilarchia archippus var. **lanthanis** Cook & Watson. Athenia, August 13, 1911. F. E. Watson.

Dilophonota obscura Fabr. var. **domingonis** Butl. Newark, Sept. 4, 1912. L. Doerfel. Probably a visitor.

Comacla simplex Walk. Passaic Park, July 12, 1906. Taken at light. M. H. Mead.

Hyphantria textor Harris. Passaic Park, June 26. Local, not common. M. H. Mead.

Apantesis intermedia Stretch. Lake Hopatcong, Sept. 15, 1913. F. Lemmer.

Apantesis vittata Fab. form **radians** Walk. Passaic Park, June 4, 1906. Local, rare, taken at light. M. H. Mead.

Acronycta radcliffei Harv. Orange Mts., May 4, 1913. F. Lemmer.

Chytonix sensilis Grote. Cassville, Aug. 17, 1910. W. T. Davis.

Xylophasia nigrior Smith. Passaic Park, July. M. H. Mead.

Leucania minorata Smith. Passaic Park, May and June. M. H. Mead.

Graphiphora garmani Grote. Passaic, April, 1901 and 1914. M. H. Mead.

Xylina disposita Morrison. Passaic Park. M. H. Mead.

Xylina petulca Grote. Rutherford, May 5, 1914. M. H. Mead.

Xylina pexata Grote. Passaic Park, April 17, 1906, Nov., 1911. M. H. Mead.

Nonagria laeta Morr. Elizabeth, 1913. F. Lemmer.

Papaipema necopina Grote. Passaic Park, October. At light. M. H. Mead.

Ochria sauzaelitae. Passaic Park, Sept., 1902. At light. Rare. M. H. Mead.

Xanthia flavago Fab. Passaic Park, October. M. H. Mead.

Anchocelis digitalis Grote. Passaic Park, August, 1913. M. H. Mead.

Epiglaea apiata Grt. New Egypt. Moths taken on cranberry vines. H. B. Scammell.

Derrima henrietta Grt. Passaic Park, July. M. H. Mead.

Plusia simplex Gn. Whitesbog, Pemberton, moths resting on cranberry vines. H. B. Scammell.

Anomis erosa Hbn. Irvington, Nov. 10, 1912. Bred from larvae found on hollyhock. F. Lemmer. (Food plant new record).

Callopistria floridensis Guenee. Passaic, 1907. M. H. Mead. Riverton, Rutherford, in greenhouses, larvae doing much damage to ferns. H. B. Weiss.

Catocala connubialis Gn. So. Elizabeth, July 26, 1912. H. H. Brehme.

Catocala epione Dru. Irvington, July 12, 1913. Larvae on butternut. F. Lemmer. (Food plant new record).

Anticarsia gemmatilis Hbn. Passaic Park, October 11, 1904. M. H. Mead.

Harpyia scolopendrina Bois. Passaic Park, May 3, 1904. Local, rare. Taken at light. **albicoma** Stretch. August 3, 1905, at Passaic Park. M. H. Mead.

Gypsochroa sitellata Gn. Irvington, August 16, 1913. F. Lemmer.

Synchlora liquoraria Gn. Passaic Park, May, June, common. M. H. Mead.

Cleora indicataria Walk. Orange Mts., July 5, 1913. F. Lemmer.

Metrocampa praegrandaria Guenee. Passaic Park, June 24, 1909, August 26, 1910. At light and on tomato vine. M. H. Mead.

Xanthotype crocataria Fabr. var. **caelaria** Hulst. Passaic. M. H. Mead.

Rhyacionia rigidana Fern. Manumuskin. Larvae taken May 21, 1912. Daecke.

Sparganothis violaceana Rob. Pemberton. H. B. Scammell.

Archips georgiana Wlk. Whitesbog. On cranberry and huckleberry. Elizabeth White.

Tortrix bergmanniana Linn. Whitesbog. H. B. Scammell.

Gelechia trialbamaculella Cham. Pemberton. Among cranberry vines. H. B. Scammell.

Dasychira pudibunda Linn. European red-tail. Bergen county by H. Wormsbacher. Probably introduced on nursery stock.

Order HYMENOPTERA.

Kaliosyphinga dohrnii Tischb. Elizabeth. Leaf miner in alder. August, 1913 and 1914. H. B. Weiss.

Neuroterus saltatorius Hy. Edwards. New Jersey. Galls occur on burr oak, white oak, post oak. W. Beutenmuller.

Callirhytis fruiticola Ashmead. New Jersey. Galls in acorns of scarlet, red and black oaks. Beut.

Andricus glandulus Beut. New Jersey. Acorn gall of swamp white oak, chestnut oak and dwarf chestnut oak. Beut.

Andricus operatola Bassett. New Jersey. Galls on acorns of red, scarlet, black and scrub oaks. Beut.

Andricus perditor Bassett. New Jersey. Gall is deformed acorn of scrub oak. Beut.

Aulacidea nabali Brodie. New Jersey. Gall at base of stems of *Nabalus altissima*. Beut.

Perilitus epitricis Viereck. Elmer, Robbinsville, Freehold. From middle of July to beginning of September. Also bred from adult *Epitrix cucumeris*. A. E. Cameron.

Apanteles aristotelae Vier. Anglesea. June.

Apanteles choreuti Vier. Anglesea, July. Reared from *Choreutis carduiella*. Kearfoot.

Apanteles epinotlae Vier. Anglesea, June 15.

Apanteles plesius Vier. Essex County, June 29.

Apanteles trachynotus Vier. Little Silver, June 20.

Phytodietus vulgaris Cress. New Brunswick. Bred from pupa of *T. politana*.

Aspidiotiphagus citrinus Craw. Bred from *Diaspis carueli* Targ. August, 1913. C. H. Richardson.

Coccophagus lunulatus Howard. Bred from a soft scale on *Euonymus* received from Japan. Elizabeth, April 13, 1911. H. B. Weiss.

Encyrtus flavus Howard. Bred from *Coccus hesperidum*. H. B. Weiss.

Pheidole anastasii Emery. Rutherford, April 14, 1914. In greenhouse. H. B. Weiss.

Tetramorium guineense Fabr. Rutherford, April 8, 1914. In greenhouse. H. B. Weiss.

Prenolepis fulva Mayr. subsp. **pubens** Forel. Rutherford, April 14, 1914. In greenhouse. H. B. Weiss.

Monogonogastra rugator Say. New Brunswick, August 6, 1912. Collected in pupal cell of *Lixus concavus* in *Rumex crispus*. H. B. Weiss.

Signophora nigrita Ashm. Bred from San Jose Scale. October, 1913. H. B. Weiss.

Isosoma orchidearum Westwood. The "cattleya fly." Occurs in greenhouses where *Cattleya* spp. are grown. H. B. Weiss.

Order DIPTERA.

Boletina obscura Johannsen. Forest Hill, April. Weidt.

Exechia absoluta Johannsen. Riverton. C. W. J.

Exechia attrita Johannsen. Forest Hill, April, November. Weidt.

Exechia canalicula Johannsen, New Jersey, July.

Exechia captiva Johannsen, Cape May, Sept. Viereck.

Exechia quadrata Johannsen. Cape May, Sept. Viereck. Hemlock Falls, August. Weidt.

Mycetophila fastosa Johannsen. Riverton, Del. Water Gap. C. W. Johnson.

Allodia bulbosa Johannsen. Forest Hill. Weidt.

Allodia falcata Johannsen. Cape May.

Sciara sciophila Lw. Newark. E. L. Dickerson.

Mycothera fenestrata Coq. var. **praenubila** Johannsen. Forest Hill, April. Weidt.

Mycothera impellans Johannsen. Lavallette, May. Viereck.

Dasyneura trifolii Lw. Newark, September 15. Bred from cocoons on surface of clover leaf. The clover leaf midge. E. L. Dickerson.

Prosimulium mutatum Malloch. Glassboro, Mar. 28, 1910. Clementon, May 7, 1910. C. T. Greene.

Prosimulium pecuarum Riley. Iona, April 21, 1907. C. W. Johnson.

Diachlorus ferrugatus Fabr. Weymouth, July 30, 1904. Stone Harbor, August 3, 1907. Daecke.

Dasyllus champlaini Walton. Browns Mills Junc., July 10, 1906.

Psilopodinus flavipes Ald. Merchantville, July 28. Stafford.
Psilopodinus viridicoxa Ald. Trenton, June 8, 1911. Stafford.
Asyndetus harbeckii V. Duzee. Wenonah, June 26. H. S. Harbeck.
Medeterus lobatus V. Duzee. Barnegat City Junc., Aug. 11, 1910. Harbeck.
Medeterus modestus V. Duzee. Avon, Sept. 27, 1908. Harbeck.
Gymnopternus chalcochrus Loew. Wenonah, May 15, 1910. C. T. Greene.
Aphiochaeta fisheri Malloch. Del. Water Gap. C. W. Johnson.
Aphiochaeta lutea Meig. Del. Water Gap, July 12.
Pipunculus aequus Cress. Del. Water Gap, June and July. C. W. Johnson.
Pipunculus minor Cress. Riverton. C. W. Johnson.
Myiolepta strigilata Loew. Iona, May 17, 1914. Harbeck.
Syrphus fisheri Walton. Riverton, July 9, 1910. G. M. Greene.
Merodon equestris Linn. Orange, Oct. 17, 1913. The Narcissus fly.
Zodion intermedium Banks. Malaga, Sept. 15, 1909. C. T. Greene.
Alophora nitida Coq. Pemberton, July 11, 1909. C. T. Greene.
Chaetona nitens Coq. Wenonah, September 5, 1910. C. T. Greene.
Helicobia quadrisetosa Coq. Wenonah, August 21, 1910. C. T. Greene.
Coenosia pallipes Stein. Newark, August 22. E. L. Dickerson.
Scatophaga volucricaput Walk. Newark, 6th to 10th month. E. L. Dickerson.
Oecothea fenestralis Fall. Newark, Sept. 18. E. L. Dickerson.
Sapromyza conjuncta Johnson. Jamesburg, July 4. Avalon, June 8. C. W. Johnson.
Sapromyza disjuncta Johnson. Del. Water Gap, July 12. Wildwood, Aug. 12.
Agromyza maculosa Mull. Newark, Sept. 1. E. L. Dickerson.
Pseudostenophora bispinosa Malloch. Westville, April 11, 1900.

A New Food Plant for Ph. cynthia; Sugaring interfered with by Leucania unipuncta (Lep.).

A new food plant for the larvae of *Philosamia cynthia* was discovered last season by Mrs. A. R. Iliff, 5527 Pulaski Avenue, Germantown. It is the *Eupatorium ageratoides,* to be found in rich woods and fields. Quite a large number of the moths were raised and three generations obtained. Sugaring for Catocalas has been rather discouraging as the army worm moth *Leucania unipuncta* covered the sugared surfaces on the trees to such an extent as to exclude other species. With one stroke of the net hundreds could be swept off the bark.—HERMAN HORNIG, Philadelphia.

A new Species of Neogaurax (Chloropidae, Dipt.).

By J. R. MALLOCH, Urbana, Ill.

Neogaurax fumipennis n. sp.

Female.—Glossy black. Frons brown, becoming yellow towards anterior margin; triangle glossy black; face reddish yellow; antennae reddish, third joint darkened on upper margin; arista brown; cheeks, proboscis and palpi brown. Thorax entirely black, with very slight indications of pruinescence. Abdomen brown-black, slightly shining, the basal two segments yellowish. Legs yellow; apical half of femora and all except the extreme bases and the apices of tibiae of hind legs black; tarsal claws black. Wings with a distinct fuscous area extending from humeral vein nearly to apex of third vein along costa and covering the surface from slightly posterior to third vein to costa; veins brown. Halteres black. All hairs and bristles yellowish white.

Frons nearly half the width of head, and distinctly broader than long; triangle short and broad, reaching well towards anterior margin of frons; surface hairs long, especially on orbits; antennae rather large, third joint rounded, pilosity short; arista as long as anterior width of frons, its pubescence distinct and close; cheek linear, not over one-tenth the eye-height; eye about one and one-half times as high as long, distinctly pubescent. Mesonotum densely covered with rather long pale hairs, which are indiscriminately arranged; surface without distinct punctures or furrows; scutellum rounded, its surface with short hairs, four marginal bristles present. Abdomen short, somewhat pear-shaped, the surface with many short hairs. Legs stout and rather long, their surfaces covered with short hairs. Costal division from humeral vein to end of first vein equal to second division; auxiliary vein complete but indistinct; fourth vein ending at wing tip; third ending slightly nearer to apex of fourth than to second; outer cross-vein short, obliquely placed, its upper extremity nearer to wing tip than its lower; last section of fifth vein one and one-half times as long as penultimate section of fourth.

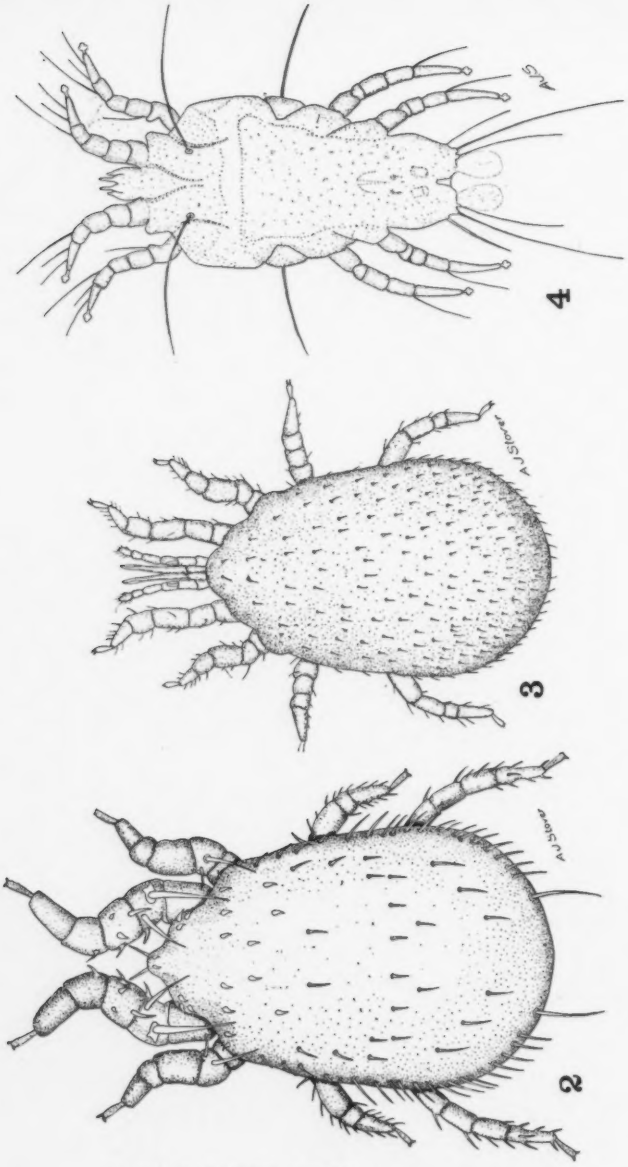
Length, 2 mm.

Type locality, Muncie, Ill. May 24, 1914 (E. H. Swigert). [Illinois State Laboratory of Natural History.]

Separable from *N. montanus* Coquillett by the black scutellum.

Bibliography of Sir John Lubbock.

A "Biological Bibliography" of the late Sir John Lubbock, Lord Avebury, has been published in connection with an obituary notice in the *Proceedings of the Linnean Society of London*, 126th Session, pp. 56-59. October, 1914.



NEW PARASITIC MITES—EWING AND STOVER.

New Parasitic Mites (Acarina).

By H. E. EWING and A. J. STOVER.*

(Plate IV)

Parasitism is a phenomenon of quite frequent occurrence in the Acarina. Of the thirty or more families now recognized in the order, no less than seventeen contain species that are parasitic in their adult state; while three more contain species that have parasitic larvae. The number of parasitic species found in the order is very large, several hundred already being described. Yet, notwithstanding this large number of parasitic species, to say nothing of the enormous numbers of individuals that are frequently found upon a single host, up to the present practically no systematic work has been done upon them in this country, with the exception, of course, of the ticks.

In the following paper four new species are described. They are distributed among three genera, and as many families. So far, we have but a single species in each of these three genera recorded from our country. Hence these new additions are of rather special interest to those engaged in the study of mites. The determinations of the species described in this paper were made by Mr. Ewing. The drawings were made by Mr. Stover. Types in the collection of the senior author.

DESCRIPTION OF SPECIES.

Fam. GAMASIDAE.

Haemogamasus sanguineus n. sp. (Text-fig. 1.)

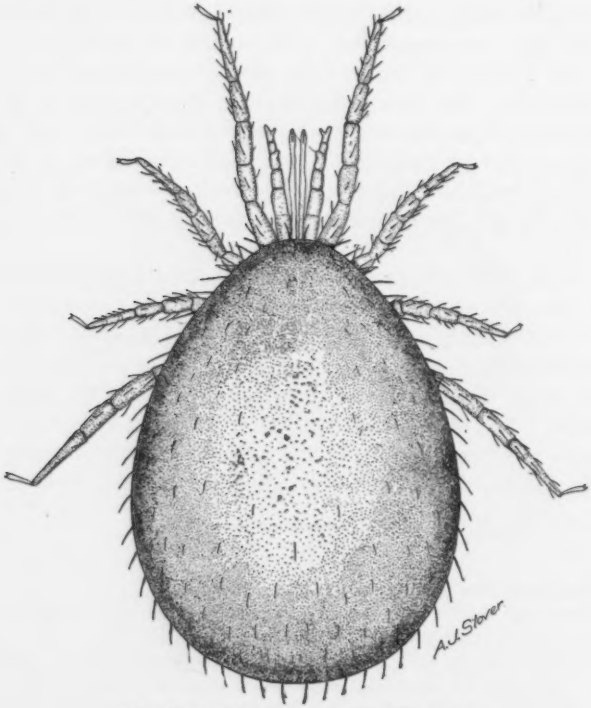
Engorged specimen tick-like in shape, body appearing red with many black pellets contained inside showing through the skin.

Female.—Mouth-parts moderate; palpi about one-half as long as the first pair of legs; chelicerae when extended reaching the tips of the palpi. Distal segment of palpus almost twice as long as the segment next to it, well clothed with hairs, and bearing a sharp, spur-like spine on its inner margin; penultimate segment slightly longer than broad, simple; antepenultimate segment about one and one-half times longer than penultimate, slightly produced anteriorly at its inner mar-

*A contribution from the Department of Zoology and Physiology, Oregon Agricultural College, Corvallis, Ore.

gin. Chelicerae slender, both arms very tapering and adapted for piercing.

Cephalothorax not demarcated from abdomen. Body sparsely clothed with curved, sharp bristles. Most of these bristles have each, one or more small branches on the outer curved margin. On the anterior end of the body is situated a small pair of submedian straight bristles.



Text fig. 1.—*Haemogamasus sanguineus* n. sp.

Legs rather slender; first pair reaching beyond the tips of the palpi by the full length of the last two segments; fourth pair falling far short of the tip of the abdomen. Tarsus of leg I slightly longer than tibia, clothed with somewhat lengthened hairs; tibia subequal to genual. Leg II slightly, if at all, enlarged, somewhat longer and stouter than leg III. Tarsus of leg IV very long and tapering, about one and one-half times as long as tibia; tibia not as stout as

genual. Tarsal claws of all the legs rather small, and strongly curved. Total length of female, 0.96 mm.; width, 0.70 mm.

Male.—Not found.

From Ames, Iowa; taken from *Mus rattus* Linn. by H. E. Ewing.

An adult female and an immature individual obtained. This species differs from *H. americanus* Banks in having shorter and much stouter legs, in having larger mouth-parts, etc. The fourth pair of legs in *H. americanus* Banks extend beyond the tip of the abdomen; in *H. sanguineus* n. sp. they fall far short of the tip of the abdomen.

Fam. DERMANYSSIDAE.

Liponyssus spiniger n. sp. (Plate IV, Fig. 2.)

A rather large, dark brown species. Integument well chitinized. Body and appendages well clothed with prominent stout spines.

Female.—Mouth-parts only moderately prominent; palpi about one-half as long as first pair of legs, with simple segments and no large spines. Chelicerae slender.

Cephalothorax not demarcated from abdomen, strongly emarginate on its sides, and ending anteriorly in a medium papilla-like process. Dorsally the cephalothorax bears several pairs of very short, stout, slightly curved, sharp spines; one of these pairs is situated on the anterior papilla-like process, two pairs are situated laterally, and one pair is situated on the antero-lateral margin of the shoulders. Besides these short, stout spines, a longer straight pair is situated on the anterior aspect of the papilla-like process.

Abdomen about three-fourths as broad as long, broadest above the last pair of legs, and evenly rounded behind. Abdomen clothed with prominent spines; those on its dorsal surface rather short but sharp, those on the sides of abdomen large, stout, and slightly curved. On the posterior margin of abdomen is situated a single pair of spines, the longest pair found on the body. Anal plate about three-fourths as broad as long, broadest at its base and rounded at its tip; with but a single spine which is located on its posterior margin at the median line.

Legs stout, the first and second pairs subequal and stouter than the third and fourth pairs. Last pair of legs extending to the level of the posterior margin of the abdomen. All the legs well clothed with spines; the first legs each bear two enormous spines on the dorsal surface of the femur; the outer is slightly the larger and considerably longer than the segment from which it springs; above the inner at the

base of the patella is a prominent but much shorter spine. Each femur of the second pair of legs bears a long slender spine on its dorsal aspect; this spine is somewhat smaller than either of the enormous spines borne by the femora of the first pair of legs. All the legs bear rather prominent caruncles at the tips of their tarsi; tarsal claws rather weak. Total length of female, 0.77 mm.; width, 0.50 mm.

Male.—In general similar to the female, but smaller. Body broadest above the third pair of legs, instead of above the last pair, as is the case with the female. Sternal plate about twice as long as broad; genital opening situated about its width from the anterior margin of the genital plate. The sternal plate bears four pairs of long, straight, sharp, backwardly directed spines, situated as follows: One pair at the genital opening about one-half of the distance from the opening to the lateral margins of sternal plate, one pair on the lateral margins of the sternal plate opposite the second pair of legs, one pair situated on the lateral margins opposite the third pair of legs, and one pair situated sublaterally half-way between the third and fourth pairs of legs. Anal plate somewhat different from anal plate of female, its sides concave; it extends backward to the posterior margin of the abdomen.

Coxa of leg I, with a row of three stout spines along its lateral margin as is found in the female, but they are longer in the male; proximal spine considerably longer than the other two. Fourth legs extending beyond the tip of abdomen by about one-third their length. Total length of body, 0.63 mm.; width, 0.36 mm.

From Ithaca, New York State; taken from muskrat by the writer.

Described from four females and one male. This species is quite distinct from the others of the genus on account of its large spines.

Liponyssus crosbyi n. sp. (Plate IV, Fig. 3.)

A moderate-sized, pale yellowish brown species, without prominent hairs or spines.

Female.—Mouth-parts prominent. Palpi two-thirds as long as the first pair of legs; mandibles long, slender, when extended reaching the tips of the palpi.

Cephalothorax not demarcated from abdomen, almost nude. Sternal plate slightly broader than long, broadest at its posterior end, and with three pairs of submarginal bristles; all long, straight, and directed backward.

Abdomen about two-thirds as broad as long, evenly rounded behind, and sparsely clothed with fine hairs. Anal plate triangular, slightly

longer than wide, with a small spine near its tip, and a similar spine on each side of the anus. Anus situated about its width from the front margin of the anal plate.

Legs moderate; first pair extending beyond the tips of the palpi by about one-third their length; fourth pair not quite reaching the posterior margin of the abdomen. The first and fourth pairs of legs are subequal in length. The second pair is slightly enlarged. Tarsus of leg I, clothed at its tip with many fine bristles. Pulvilli of all the legs rather large, tarsal claws moderate, strongly curved. Total length of female, 0.58 mm.; width, 0.34 mm.

Male.—Not observed.

From Rockport, Missouri; taken from bat, *Vesper subulatus* Say by C. R. Crosby.

Three adult females and one immature specimen obtained. Description made from a single individual, the type specimen. The other adult females labeled as cotypes. This species differs from *Liponyssus americanus* Banks in the shape of its body which is more pear-like, in having much shorter and stouter legs, as well as in several other characters.

Fam. ANALGESIDAE.

Proctophyllodes trisetosus n. sp. (Plate IV, Fig. 4.)

A medium-sized, light brown species; with posterior bristles quite prominent.

Male.—Mouth-parts extending forward for about one-half the length of the first pair of legs.

Dorsal shield of cephalothorax granular, moderately chitinized, slightly broader than long, and bearing near each side a large tactile bristle which is longer than the shield itself. Epimera of first pair of legs well chitinized, and contiguous at their posterior ends though not fused together. Epimera of second pair of legs well chitinized, crescent-shape, and diverging strongly for the posterior two-fifths of their length.

Dorsal plate of abdomen broadest at its anterior end; about two and one-half times as long as broad, and slightly granular. From the sides of the abdomen just in front of the third pair of legs there extends a long pair of bristles. These bristles are about one-half as long as the abdomen. Genital area inverted U-shaped. Penis sharp, stout, spine-like; extending from the anterior margin of the genital area backward about two-thirds the distance to the bases of anal suckers. Anal suckers strongly chitinized, about one and one-half times as long as they are broad at their bases. Hyaline plates foliaceous, not more than

two-thirds as long as that part of the abdomen behind the fourth pair of legs. Just laterad to the hyaline plates is situated a pair of bristles which extend backwards for about twice the length of the plates. On the posterior corners of the abdomen is situated a pair of very large bristles. These are over one-half as long as the body of the mite. Just in front of this pair of large bristles is a smaller pair about one-third as long.

Legs moderate; fourth pair reaching beyond the tip of abdomen by the entire length of the tarsus. Length of body, 0.28 mm.; width, 0.13 mm.

Female.—Body larger and more strongly chitinized than in male. Cephalothorax as broad as long; sides almost parallel. Dorsal shield of cephalothorax granular, two-thirds as broad as the cephalothorax itself. Dorsal bristles situated near the incisions in the dorsal shield for the second pair of legs. They are somewhat longer than the cephalothorax.

Abdomen about twice as long as cephalothorax. Dorsal shield of abdomen rectangular, slightly over twice as long as broad. Posterior tubercles of abdomen rather prominent, as long as the posterior segment from which they extend. The bristles borne by the posterior tubercles are quite stout, each being about one-half as long as the abdomen. Epiandrium crescent-shaped, strongly chitinized and almost one-half as broad as the width of the body at the region where it is situated.

Legs similar to those of the male; fourth pair just reaching the tip of abdomen, excluding the posterior tubercles. Length of body, excluding posterior tubercles, 0.40 mm.; width, 0.16 mm.

From Ithaca, New York; taken from meadow lark, *Sturnella magna* Linn. by H. E. Ewing.

Descriptions made from type specimens. Many males, females, and young collected. The crescent-shaped, or inverted U-shaped, epiandrium, and the shortness of the anal suckers characterize this species from most of the others.

Lucilia morrilli T.—A Correction (Dipt.).

On page 112, volume XXV, of the NEWS, what is said under *Lucilia morrilli* must be retracted. It was written when examination of the type and cotypes was impossible. I have since examined these and find that I was mistaken, and that the actual type and cotype material is undoubtedly *Ps. cornicina* F.—CHARLES H. T. TOWNSEND.

The Lepidoptera of the Douglas Lake Region, Northern Michigan.*

By Paul S. Welch, Manhattan, Kansas.

During the summers of 1911-1913 the writer had an opportunity to study the Lepidoptera of northern Michigan in the immediate vicinity of Douglas Lake. Collections made throughout the months of July and August of the three years are used as the basis of this report. An attempt has been made to have the list as complete as possible, but future collecting will, no doubt, make important additions. However, it includes many species which have not been reported from northern Michigan and is doubtless complete enough to give a fairly accurate idea of the Lepidopterous fauna of this region. Tortricidæ and Tineidæ were collected at every opportunity, but no attempt has been made as yet to study these groups, although a few of the more easily identified species have been included in the list.

Douglas Lake, formerly known as Turtle Lake, is situated in the extreme northern part of the southern peninsula of Michigan, about eighteen miles south of the Straits of Mackinac. Forests of hardwoods and conifers formerly covered the greater part of this region, but only remnants of the primeval forest remain—the results of the ravages of forest fires and lumbermen. Extensive burned-over tracts occur near the lake and produce a wild profusion of aspen, bracken fern, blueberry, and other plants common to such a situation. Two primitive tracts of hardwoods lie near the shores of the lake. Two extensive cedar bogs and several smaller ones are present in the immediate vicinity. Along the north shore is a series of beach pools, rich in animal and plant life. Five other lakes of varying size lie within a radius of eight miles. Excepting the areas covered by bogs, the soil is almost pure sand. The variety of conditions is accompanied by a corresponding variety in the vegetation, there being about five hundred species of flowering plants and a large number of non-flowering plants in the region. Such a flora can furnish food for the larvæ of

*Contribution from the University of Michigan Biological Station, No. 24.

numerous species of Lepidoptera and leads us to expect a well-represented fauna of this order.

Owing to the fact that so few local lists of Michigan Lepidoptera have been published, it is not practical to attempt to compare the fauna of Douglas Lake with that of other parts of the state. The present list contains a large number of species of northern range. When compared with the studies on Canadian Lepidoptera by Dod, Gibson, Winn, and others, a distinct resemblance to the faunas of Quebec, Ontario, and Manitoba is evident. A detailed comparison with the south Canadian fauna is interesting, but beyond the limitations of this paper.

The value of local surveys in extending our knowledge of the distribution of any group of insects depends greatly upon the accuracy of the identification of the species involved. In order to make the following list as accurate as possible, all determinations involving the slightest uncertainty due to defective specimens, insufficient material, and the like, have been indicated. The writer wishes to express his indebtedness to Dr. William Barnes, of Decatur, Illinois, for the privilege of working in his splendid collection. Acknowledgments are also due to Dr. Barnes and his colleague, Dr. J. H. McDunnough, for assistance in determining the more difficult material.

RHOPALOCERA.

Nymphalidae.

Danais plexippus Linn.
Argynnis cybele Fabr.
Argynnis atlantis Edw.
Argynnis bellona Fabr.
Phyciodes tharos Dru.
Grapta interrogationis Fabr.
Grapta comma Harris.
Grapta j-album Bd. & Lec.
Vanessa antiopa Linn.
Vanessa milberti Godt.
Pyrameis atalanta Linn.
Pyrameis huntera Fabr.
Pyrameis cardui Linn.
Limenitis ursula Fabr.
Limenitis arthemis var. proserpina Edw.
Limenitis archippus Cram.
Satyrus alope var. nephele Kirby.

Lycaenidae.

Lycæna comyntas Godt.
Feniseca tarquinius Fabr.
Chrysophanus hypophlæas Bdv.

Papilionidae.

Pieris rapæ Linn.
Colias eurytheme var. eriphyle Edw.
Colias philodice Godt.
Papilio glaucus var. turnus Linn.

Hesperidae.

Pamphila hobomok Harris.
Pamphila peckius Kirby.

HETEROCERA.

Sphingidae.

Hyloicus chersis Hbn.
Sphinx (Smerinthus) jamaicensis var. geminatus Say.
Haemorrhagia (Hemaris) diffinis var. aethra Strk.

Saturniidae.

Samia cecropia Linn.
Telea polyphemus Cram.

Syntomidae.

Lycomorpha pholus Dru.
Ctenucha virginica Charp.

Lithosiidae.

Hypoprepia miniata Kirby.
Hypoprepia fuscosa Hbn.
Clemensia albata Pack.

Nycteolidae.

Sarrothripa revayana Scop.

Arctiidae.

Eubaphe immaculata var. trimaculosa Reak.
Eubaphe aurantiaca var. brevicornis Wlk.
Haploa confusa Lyman.
Hyphoraia parthenos Harris.
Apantesis parthenice Kirby.
Apantesis phyllira Dru. (?)

Noctuidae.

Acronycta americana Harris.
Chytonix sensilis Grt.
Hadena devastatrix Brace.
Hadena arctica Bdv.
Pyrophila pyramidoides Gn.
Rhynchagrotis anchocelioides Gn.
Rhynchagrotis placida Grt. (?)
Rhynchagrotis alternata Grt. (?)
Agrotis ypsilon Rott.
Agrotis geniculata G. & R.
Noctua smithii Snell.
Noctua haruspica Grt.
Noctua inopinata Sm.
Noctua clandestina Harris.
Feltia subgothica Haw.
Porosagrotis vetusta Wlk.
Porosagrotis mimallonis Grt.
Mamestra imbrifera Gn.
Mamestra purpurissata Grt.
Mamestra cervina Sm.
Mamestra renigera Steph.
Mamestra vicina Grt.
Heliophila multilinea Wlk.
Bellura melanopyga Grt.
Scoliopteryx libatrix Linn.
Plusia aeroides Grt.
Marasmalus inficita Wlk.
Metathorasa monetifera Gn.
Homopyralis contracta Wlk.
Drasteria erechtea Cram.
Catocala ultronia Hbn.
Catocala briseis Edw.
Catocala concumbens Wlk.
Parallelia bistriaris Hbn.
Epizeuxis lubricalis Geyer.
Epizeuxis aemula Hbn.
Epizeuxis sp.
Zanclognatha ochreipennis Grt.
Bleptina caradrinalis Gn.
Renia flavipunctalis Geyer.
Palthis angulalis Hbn.
Capis curvata Grt.
Plathypena scabra Fabr.

Thyatiridae.

Habrosyne scripta Gosse.

Notodontidae.

Melalopha albosigma Fitch.
Datana ministra Dru.
Hyperaeschra stragula Grt.
Lophodonta angulosa S. & A.
Schizura concinna S. & A.

Schizura unicornis S. & A.
Cerura scitiscripta var. multiscripta Riley.
Harpyia sp.
Gluphisia septentrionalis Wlk.

LASIOCAMPIDAE.

Malacosoma americana Harris.
Malacosoma disstria Hbn.

GEOMETRIDAE.

Eudule mendica Wlk.
Euchoeca albovittata Gn.
Euchoeca albifera var. brunneifasciata Pack. (?)
Eustroma nubilata Pack.
Rheumaptera sociata Bork.
Percnoptilota fluviata Hbn.
Hydriomena autumnalis Ström.
Gypsochroa designata Hbn.
Cosymbia lumenaria Hbn.
Synelys ennucleata var. revelata Swett.
Physostegania pustularia Gn.
Gueneria basiaria Wlk.
Deilinia variolaria Gn.
Sciagraphia mellistrigata Grt.
Cymatophora pustularia Hbn.
Caripeta divisata Wlk.
Cleora indicataria Wlk.
Lycia cognataria Gn.
Xanthotype crocotaria Fabr.
Ania limbaria Haw.
Euchlaena effectaria Wlk.
Euchlaena johnsonaria Fitch.
Sabulodes transversata Dru.

SESIIDAE.

Aegeria tibialis Harr.
Aegeria apiformis Linn.
Sanninoidea exitiosa Say.
Sesia rutilans Hy. Edw. (?)

PYRALIDAE.

Lipocosma fuliginosalis Fern.
Desmia funeralis Hbn.
Evergestis straminalis Hbn.
Nomophila noctuella Schiff.
Loxostege commixtalis Wlk.
Phlyctaenia helvalis Wlk.
Pyrausta pertextalis Led.
Pyrausta fumoferalis Hulst.
Pyrausta funebris Ström.
Nymphula icciusalis Wlk.
Nymphula ekthlipsis Grt.
Nymphula allionealis Wlk.
Nymphula badiusalis Wlk.
Nymphula maculalis Clem.
Pyralis farinalis Linn.
Herculia himonalis Zell.
Schoenobius tripunctellus Rob. (?)
Schoenobius mellinellus Clem. (?)
Crambus pascuellus Linn.
Crambus hortuellus Hbn.
Crambus caliginosellus Clem.
Thaumatopsus sp.
Chilo comptulatalis Hulst.
Acrobasis comptoniella Hulst.
Meroptera pravella Grt. (?)
Salebria sp.
Peoria approximella Wlk.

PTEROPHORIDAE.

Oxyptilus periscelidactylus Fitch. (?)

TORTRICIDAE.

Exartema permundanum Clem. (?)
Archips purpurana Clem.

YPONOMEUTIDAE.

Harpipteryx frustella Wlsm.

ELACHISTIDAE.

Lymnæcia phragmitiella Staint.

TINEIDAE.

Scardia anatomella Grt.

Bibliography.

The following titles include all of the lists of Michigan Lepidoptera known to the writer. Many scattered references to individual species taken in the state occur in the literature but are omitted here.

Adams, C. C. 1908. Annotations on Certain Isle Royale Invertebrates. An Ecological Survey of Isle Royale, Lake Superior. Report of the State Board of Geological Survey of Michigan for 1908, pp. 267-277.

Newcomb, W. W. 1904. Some notes chiefly on the scarcity of Michigan Rhopalocera in 1903. Ent. News, 15: 204-206.

Ibid. 1912. Check-list Michigan Lepidoptera. I. Rhopalocera (Butterflies). Fourteenth Report Mich. Acad. Sci., 14: 266-230.

Ibid. 1913. Check-list Michigan Lepidoptera. II. Sphingidae (Hawk Moths). Fifteenth Report Mich. Acad. Sci., 15: 213-214.

Pettit, R. H. 1901. Insect and Animal Life on the Upper Peninsula Experiment Station. First Report of the Upper Peninsula Experiment Station for the year 1900. Michigan State Agricultural College Experiment Station, Bull. 186, pp. 28-42.

Ruthven, A. G. 1905. Spiders and Insects from the Porcupine Mountains and Isle Royale, Michigan. An Ecological Survey in Northern Michigan, prepared under the direction of Chas. C. Adams. Report of the State Board of Geological Survey of Michigan for the year 1905, pp. 100-106.

Wolcott, R. H. 1893. The Butterflies of Grand Rapids, Michigan. Can. Ent., 25: 98-107.

Sympetrum corruptum, a Dragonfly, at a High Altitude (Odon.).

I am taking the liberty of sending you a dragonfly which I thought might be of interest on account of the altitude at which it was taken. I was giving a course in biology at the summer school of the State University and one of my pupils, Miss Rosamond Little, of Limon, Colorado, took this specimen when we were ascending Arapahoe Peak, July 18, 1914. It was a surprise to us to find a dragonfly at this altitude (13,000 ft.). It was doubtless carried up by the strong wind currents from one of the subalpine lakes below. Though a common species, I thought that the altitude record might be worth while.—Ellsworth Bethel, East Side High School, Denver, Colo.

[The specimen sent by Mr. Bethel was a female. There is a record by Dr. Henry Skinner of this species at 11,000 feet, at Silver Lake, Colorado.—Ed.]

Classification of Orders of Insects.

By C. W. Woodworth, University of California, Berkeley, Calif.

One of the most confusing things confronting a beginner in Entomology, and which often remains an enigma to more experienced students, is the great variety in the number and arrangement of the Orders to be found in the various text books.

The accompanying chart, which has been used in my classes with very good results as an aid in the comprehension of this subject, presents seven systems of classification: that of Linnaeus, those given in five standard American text books and the system adopted by myself in which the groups follow in chronological sequence. The names most frequently used for all but two of the 41 groups which have at some time been raised to the rank of Orders are also given, together with a list of Genera, mostly Linnaean, which may be considered the types of these groups.

In each column the numerals give the sequence followed by the different authors. The groups not indicated by figures in any column were combined in the preceding numbered order by that author and numbers in parenthesis indicate such cases where this arrangement cannot be followed. Thus Linnaeaus included the Siphonaptera, Thysanoptera and Corrodentia in his order 7. Aptera. Where other names than those in the first column were used this is indicated in the foot notes. Thus Physopoda was used by Comstock for his order 10, which other authors called Thysanoptera. When a group was discovered near or after the date of an author as indicated in the last column, it was of course not considered by that author. Thus my classification alone locates the Zoraptera and Protura.

An inspection of the table will bring out the following points regarding the classifications of these authors:

1st. Comstock alone separates the Euplexoptera from the Orthoptera.

2nd. Folsom alone raises the Collembola to ordinal rank.

3rd. Only Comstock and Kellogg sub-divide the Corrodentia.

4th. Three authors separate the Thysanoptera and Siphonaptera from the Hemiptera and Diptera respectively, and all recognize their near relationship with these orders as shown by their consecutive arrangement.

5th. The same three authors separate and bring the Neuropterous groups with complex metamorphosis into juxtaposition with the higher groups which were derived from them.

TABLE SHOWING THE CLASSIFICATION OF INSECTS INTO ORDERS.

Names of Orders Orders adopted herein. Additional orders used by authors here cited. Groups not largely accepted.	1758 Linnaeus	1894 Comstock	1897 Smith	1905 Kellogg	1906 Folsom	1918 Sanderson	Types of Orders Linnæan Genera. Genera based on Linnæan species. Genera discovered since 1758.
11. Lepidoptera	3	15	7	17	13	12	Papilio.
10. Hymenoptera	5	19	8	18	17	14	Apis.
9. Diptera	6	16	9	15	15	13	Musca.
Homaloptera	....	....	....	....	....	....	Hippobosca.
Siphonaptera	(7)	17	....	16	16	....	Pulex.
8. Coleoptera	1	18	6	14	14	11	Carabus
Acreioptera	....	....	....	....	....	....	1869 Platypsylla W.
Strepsiptera	....	....	....	....	....	....	1802 Stylops Kirby.
7. Hemiptera	2	11	5	9	9	10	Notonecta.
Homoptera	....	....	....	....	....	....	Cicada.
	....	....	....	....	....	....	Aphis.
Proboscidia	....	....	....	....	....	....	Coccus.
Anoplura	....	....	....	....	....	....	Pediculus.
Thysanoptera	(7)	10*	....	10	8	....	Thrips.
6. Orthoptera	(1)	9	4	8	3	2	Gryllus.
Zoraptera	....	....	....	....	....	....	1913 Zorotypus Sil.
Mantoidea	....	....	....	....	....	....	Mantis.
Phasmoidea	....	....	....	....	....	..	1793 Phasma Licht.
Blattoidea	....	....	....	....	....	....	Blatta.
Diplogiossata	....	....	....	....	....	....	1871 Hemimerus W.
Euplexoptera	....	8	....	....	....	....	Forficula.
5. Corrodentia	(7)	6	(2)	6	4*	9	1767 Psocus Latr.
Isoptera	....	5	....	5	....	....	Termes.
Embioptera	....	....	....	....	....	....	1825 Embia Latr.
Mallophaga	....	7	....	7	....	....	1818 Menopon Nitz.
4. Ephemerida	(4)	2	(2)	2	6	6	Ephemera.
3. Odonata	(4)	3	(2)	4	7	8	Libellula.
2. Neuroptera	4	12	3	11	10	3	Hemerobius.
	....	....	....	....	....	....	1834 Coniopteryx C.
Raphidoidea	....	....	....	....	....	....	Raphidia.
Megaloptera	....	....	....	....	....	..	1803 Sialis Latr.
Mecoptera	....	13	....	12	11	4	Panorpa.
Trichoptera	....	14	....	13	12	5	Phryganum.
Plecoptera	....	4	2*	3	5	7	1764 Perla Geof.
1. Aptera	7	(1)	1	(1)	2†	1	Podura.
Symphleona	....	....	....	....	....	....	1806 Smynthurus Latr.
Thysanura	....	1	....	1	1	....	Lepisma.
Machiloidea	....	....	....	....	....	....	1806 Machilis Latr.
Dicellura	....	....	....	....	....	....	1864 Japyx Halid.
Rhabdura	....	....	....	....	....	....	1824 Campodea W.
Protura	....	....	....	....	....	....	1909 Acerentomon S.

10* Physopoda. 4* Platyptera. 2* Pseudoneuroptera. 2† Collembola.

6th. Sanderson separates these groups without rearrangement.

7th. Smith follows the old plan of keeping them as one order adjacent to the Pseudoneuroptera with simple metamorphosis.

8th. Folsom and Sanderson place the Orthoptera lowest of winged insects in accordance with the theory of the origin of wings in a terrestrial rather than in an aquatic insect.

9th. Comstock and Kellogg begin the winged insects with Ephemerida on the basis that the multiplicity of wing veins indicates primitive structure, and

10th. All the recent authors cited differ among themselves in the arrangement of the four higher orders. This can perhaps be best shown in another way. Below these orders are indicated by their initials:

Comstock	L D C H	Folsom	L C D H
Smith	C L H D	Sanderson	C L D H
Kellogg	C D L H	Woodworth	C D H L

If the list were extended one would find practically all possible permutations. These authors show some agreement, thus:

1st. Four place Coleoptera lowest, two the Lepidoptera.

2nd. Four place Hymenoptera highest, one each Diptera and Lepidoptera.

3rd. The Diptera are placed by four authorities adjacent to the Hymenoptera and to the Coleoptera.

4th. The Lepidoptera are placed by three authorities adjacent to each of the other orders.

5th. In no case are the Hymenoptera and Coleoptera adjacent.

There does not seem to be any good reason for this remarkable diversity of views nor any prospect that uniformity can come except from the adoption of some principle like that of geological sequence, that will make it no longer a matter of mere personal judgment, but one to be decided by the determination of fact.

Mosquito Extermination Work in Philadelphia, Pa.

By HERMAN HORNIG.

Inasmuch as the extermination of house flies and mosquitoes is as necessary to the public health and comfort of a large city as pure water and sewers, Philadelphia has tried with a small amount of money to reduce the breeding places of the house and saltmarsh mosquitoes.

During the summer of 1912, work was started in the southern section of the city along the Delaware River on a tract consisting of about 8000 acres of lowlands, which contained railroad embankments, boathouses, truck farms, piggeries, meadows and swamps. The early settlers of the city, who used this land exclusively for pasture and farming, had established canals and ditches for transportation and drainage. Later generations neglected the farms and helped to build up an industrial centre further north. As a result the waterways gradually became overgrown with vegetation and filled in with soil. Swamps were therefore created and mosquitoes found ideal breeding places between the tall reed grasses.

The ditches near the piggeries were polluted and full of larvae from May until September and the cleaning of these improved conditions remarkably.

Near the junction of the Schuylkill and Delaware Rivers a large amusement park had been erected and owing to the mosquito nuisance a large force of men was employed to abolish breeding places within the premises. Constant oiling of the numerous ditches and filling in of waterholes gave gratifying results, permitting park amusements to continue until the end of the season.

The following year 1913, extermination work was extended over the entire city. During the first few months, lectures on the life history of mosquitoes were given in different localities and in all of the schools, so that the future citizens would know where mosquitoes come from and how to exterminate them.

In addition all citizens were asked to co-operate as much as possible and mosquito literature was distributed to every

customer entering certain grocery stores. During the season about 20 miles of ditches were cleaned and dug and over 30,000 sewer catchbasins oiled.

Pools in lots, surface drains, dumps and receptacles holding water, were also looked after as much as possible. The sewers were found to furnish a constant supply of mosquitoes from the middle of July until November and later, whereas open air breeding was not observed after the end of October. It was found that the temperature of some sewers, six feet below the surface, was from 12 to 20 degrees higher than that of the surface.

In 1914 Councils appropriated $1400 for extermination work and, as the city contains 129½ square miles, it is apparent even to the layman that such a sum of money for a city with a population of one and three-quarter million people is insufficient. The attempt, however, shows progress, as such a step was never thought of by any previous administration. The extermination work is conducted by the Bureau of Highways under the guidance of an engineer.

There is no actual house to house inspection or any thorough work done to maintain ditches in good order. The force of men during the past season varied from two to eight and the most efficient work accomplished was the oiling of sewer inlets. Over 40,000 treatments were given from September until the middle of November. This kind of work, which was carried on until the middle of December in 1913, proved satisfactory, as the number of hibernating mosquitoes was kept so low that no complaints were received until four weeks after the heavy rains in May, 1914. With a sufficient force of men destroying the newly-created breeding places, the mosquitoes would have been reduced to a minimum. Tanks and fire buckets in hotels, apartment houses and factories supplied the business sections with mosquitoes and empty houses, with hoppers full of undisturbed water, were responsible for infestations in the residential sections.

A new method was tried by the Board of Health to dispose of stagnant pools difficult to drain and too remote to fill in. Dynamite was placed in the pools and a hole about 20 feet

deep blown in the middle. It was expected that the water would disappear by seepage, the hole being afterwards filled with large stones. From observations made at the two localities where it was tried it can be stated that the results were unsatisfactory.

Several creeks receiving sewage from adjoining sections furnished most of the open air breeding places. Along the edges where the water had come almost to a standstill, on account of broken banks and storm-broken trees, great colonies of *Culex pipiens* were observed. Some of these colonies were from one to two feet long and a foot wide, the larvae being so close to each other as to discolor the water and form a solid mass. In some sections a few men were employed to clear out the tree stumps and establish a better flow of water.

At one time large swarms of mosquitoes were observed at one of the sewer outlets. Upon investigation it was found that a wheelbarrow, which had been left by one of the workmen about 30 feet inside the sewer, was impairing the flow of sewage and forming a breeding pool.

In the southern part of the city a chemical factory discharges its waste water into the meadows and this favors the breeding of saltmarsh species. Several small pools in this section formed by heavy rains only and a pool in a dye-polluted creek contained millions of larvae of *Aedes sollicitans* and *A. taeniorhynchus*. *Psorophora ciliata* was found abundantly in swampy parts in company with *Aedes sylvestris* and *Culex pipiens*. Only a few specimens of *Aedes jamaicensis* and *Aedes triseriatus* were collected and *Aedes canadensis, Culex restuans, Culex salinarius* and *Coquellittidia perturbans* were found scattered in the suburbs. *Anopheles punctipennis* larvae were found in all of the smaller runs, in cattle footprints, in meadows and near stables, often breeding in the same receptacle with *Culex pipiens*.

A Preoccupied Specific Name in Tipula (Dipt.).

Having inadvertently applied the name *suspecta* to a newly described species of *Tipula* in my recent paper, entitled "On the Hebes Group of the Dipterous Genus Tipula Linnaeus," the name being preoccupied by *Tipula suspecta* Loew, I wish to apply the name *Tipula afflicta* for the species in question.—W. G. DIETZ, Hazleton, Pa.

Notes on Two Beetles Reared from Dead Wistaria Sticks (Col.).

By DAYTON STONER, State University of Iowa, Iowa City, Ia.

While trimming off the dead branches of a Wistaria vine (*Wistaria chinensis* DC.) at my home on May 28, 1914, I observed that some of these dead twigs showed evidences of the work of wood-borers. A few of the twigs were cut off and placed in a loose-topped glass jar in the Entomological Laboratory of the State University of Iowa and on the following day, May 29, two adult *Chrysobothris azurea* Lec., male and female, emerged. This species has not before been recorded from Iowa.

On May 29, while again trimming the same vine, I found a specimen of *Lepturges querci* Fitch crawling on one of the branches. This time a number of short pieces of the dead vine, amounting in all to about 18 feet, were removed to a glass jar in the laboratory and devolopments awaited. The diameter of the sticks varied from ¼ inch to about 1 inch, those nearer the base of the vine and hence of the larger diameter being most heavily infested. The smaller branches of the vine above 5 feet from the ground were apparently not infested although many were dead, due, very probably, to the work of the larvae in the larger stems lower down. The glass jar containing the sticks was kept on a shelf where sunlight could not strike it and where it was not directly exposed to daylight. A temperature of between 70° and 80° Fahr. was maintained in the room.

The two species of beetles emerging from the wood, together with the dates of emergence and number of each species, are indicated in the following table:

	Chrysobothris azurea Lec.	*Lepturges querci* Fitch.
29 May	2 (1 male & 1 female)	..
30 "	2 (both males)	6
1 June	3 (2 males & 1 female)	19
2 "	1 (female)	4
3 "	1 (female)	3
4 "	..	5
5 "	..	4
10 "	..	1
	Total— 9	Total—42

These Iowa specimens of *Chrysobothris* average a little larger and the elytral foveae are more distinctly bronzed or metallic than those from New York and Massachusetts in Professor H. F. Wickham's collection.

There are, perhaps, two things of particular interest in regard to this experiment: first, the great number of *Lepturges querci* secured from a comparatively small number of twigs indicates a very high degree of infestation; second, in the rather limited number of *Chrysobothris azurea* obtained the males averaged a little earlier in emergence than the females. This is, however, not an unusual occurrence among other species of Coleoptera. I believe also that *Wistaria chinensis* has not been recorded as a host plant for either of these species of beetles.

I am indebted to Professor H. F. Wickham for the determination of the *Chrysobothris* and to Professor R. B. Wylie for the determination of the *Wistaria*.

Fragments on North American Insects—VIII.

By A. A. GIRAULT, U. S. National Museum, Washington, D. C.

Difference in Habit as a Basis for Specific Differentiation.

I have noticed a tendency lately with entomologists and others to make a difference in habit coequal with a difference in structure and coloration as regards species. My attention was drawn again to this matter by casually noticing that Pierce, Cushman, Hood and Hunter (Bull. No. 100, Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C., p. 53, footnote. 1912) separate a braconid into two species—*Microbracon dorsata* and *mellitor* of Say—on the basis of a difference in social habit. They admit the two are alike structurally; in habit they differ in that *mellitor* is parasitic upon coleopterous larvae and *solitary*, while *dorsata* is parasitic upon lepidopterous larvae and *gregarious*. To my mind the separation has no reason for being. From a practical standpoint, suppose that an exploring party captured a number of Braconidae and turned them over to some Hymenopterologist

for identification. Not knowing the host or the habits of any of the species, doubtless if *dorsata* and *mellitor* were present, he could not do otherwise than consider them identical and as far as naming them is concerned it would be a matter of history only. Or, if he thought it was really true that a difference in habit mattered here, he would be unable to decide which is which. But this argument concerns practice only and inconvenience and trouble in taxonomy must be courted rather than avoided if there is a question of truth to be decided.

There can be no doubt that fundamental variation at first, in many cases at least, is psychic—the energy varies before the substance and is infinitely more variable than the latter. This psychic variation is inherited and forms habits and instincts as in the insects. In simple forms of life, the difference in habit is not expressed morphologically as much as in more complex forms, so that as we descend it becomes increasingly more difficult to separate species morphologically and a resort is made to their chemical nature and habits. But in insects this is not true. The psychic variations may finally become expressed morphologically and it is not until this is done that a specific difference arises. Keeping in mind the accepted meaning of *species,* we can point to many cases of adaptive habit in various species of insects. It is common and nowhere else more so than with insect parasites. A parasite of necessity has to adapt itself to the size of its host and I have no doubt that the gregarious habit of the Bracon on lepidopterous larvae is a case of this kind (obviously the difference in host has no bearing on the matter). Even the authors cited support my contention, for on page 66 (*l. c.*) occurs this sentence: "It appears possible that the constantly changing factors of nature cause the various species to be continually adjusting their habits to new environments and new hosts." And they cite examples of the adjustment to new hosts. An adaptive habit is certainly not a basis for specific differentiation and we certainly must consider the social or non-social habit of the Bracon as an adaptation to the size of its host. Even were it true that poly-embryony occurred

with the species and that it was proved able to alternate this mode of reproduction with the ordinary kind according to the nature of its host, this though a wonderful fact, would certainnot form a basis for specific differentiation. For the very definition of *species* would make it necessary that neither *mellitor* nor *dorsata* bred with one another or were identical in hereditary elements; for if this is so, the habits may vary infinitely without changing their essential specific unity. We know of so many instances in insects of great variability in habit of *known* specific units, and of so few or none where *known* specific units do not vary, that it would be extremely hazardous, to say the least, to base two species on the mere fact that a difference in habit was present. Before such a thing is done it will be necessary to change the definition of a species, and even that will not eliminate the fact that in nature there occur such things as a population of more or less definitely limited individuals which are all descendants from a common stock.

Seasonal Notes on Insects in Virginia.

At Blacksburg in 1901, butterflies had almost stopped flying by October 12th; by the 25th Diptera and Hymenoptera on the wing were becoming scarce; on November 9, however, swarms of Mycetophilidae were observed. Then Orthoptera were conspicuous; *Thyridopteryx* and *Callosamia* had cocooned. On March 20th following, the first butterly was observed, probably *Vanessa antiopa*. On April 11, the eggs of aphids were hatching; an adult of *V. antiopa* was observed and also several moths. On April 18, *Diastrophus nebulosus* was emerging (indoors) and the eggs of *Malacosoma americana* were hatching, the nests now appearing like cobwebs; the caterpillars then were about 6 mm. long and were feeding upon just opening buds. On April 22, *Carpocapsa pomonella* was observed depositing eggs (Professor Alwood). On the 30th, *Pieris rapae* was ovipositing onto young cabbage plants (2-3 inches high); eggs of *Coccinellidae* observed May 2, 1902, *Actias luna* had not emerged; *Malacosoma americana* now conspicuous in their nests. The following day, adult *Schisto-*

cerca americana were observed to be numerous in meadows, mating May 12; *Papilio turnus* observed on the wing. May 4, eggs of *Thyridopteryx ephemeraeformis* were hatching. May 13, *Nematus ribesii* was abundant in all stages of larval development on currants and gooseberries; Perlidae observed depositing eggs on grass stems along a stream. May 22, *Malocosoma* larvae full grown, cocooning on May 25. June 11, *Macrodactylus subspinosus* was present in numbers (since May 19). September 18, 1902, the larvae of *Ceratomia catalpae* were nearly full grown, pupating on September 22 and later. On March 14, 1902, an adult *Vanessa antiopa* was seen flying and a *Grapta;* pond life was then active.

References to Glossaries.

Some years ago in this journal (1905, pp. 105-108, 221-230), I gave a list of entomological glossaries and in 1902 I had commenced to write an entomological dictionary upon which I did a large amount of work before concluding that it was too much for one person to handle. A work of this kind is still badly needed and it will be necessary to consult all the vocabularies extant. The following references I find among my notes: Bull. 30, Univ. Montana, 1906, pp. 163-169. Frederick D. Chester, A Manual of Determinative Bacteriology, N. Y., 1901, pp. 381-386 (descriptive terms). Peter P. Good, A Materia Medica Animalia, Cambridge, Mass., 1833 (?), glossary of 54 pages. Glossary of Coccidae in second biennial Rep. Commissioners Horticulture of California, 1905-1906, p. 162. Eleanor A. Ormerod, A Textbook of Agricultural Entomology, London, 1892, edit. 2, pp. 229-231. Burt G. Wilder and Simon H. Gage, Anatomical Technology as Applied to the Domestic Cat., N. Y. and Chicago, 1882, pp. 10-45. Ed. André, Species des Hyménopterès d'Europe et d'Algérie enrichi &c., 1879, Beauve, tome premier, pp. CXLIX-CLXXXVII. These are but few.

Ptinobius dysphagae Ashmead, new species (Hym.).

In ENTOMOLOGICAL NEWS, 1904, p. 300; I mention a chalcidoid parasite (supposedly) of *Dysphaga tenuipes* Hald. which had been identified as a new species of *Ptinobius* by William H. Ashmead and given the above name, from male specimens sent to him by myself from Blacksburg, Virginia, some time early in 1903. The species has never been described and is thus but a naked name. In order that the name should become valid, I give the following description of the species from

a specimen still in my possession, sent to me by Dr. Ashmead in 1903. It is a *Ptinobius* but the wings are not banded.

Male:—Length, about 4.25 mm. Dark metallic aeneous green, the wings hyaline, the abdomen, head, mesothorax and eyes with a soft, close, greyish yellow pile; vertex with coppery tinges, the abdomen darker, purplish black, its second segment green and glabrous. Venation, scape and pedicel, trochanters, knees, tips of tibiae and tarsi reddish brown. Hind femur somewhat swollen and with fine denticulation, distad with five teeth. Funicle and club black. Parapsidal furrows faint, half complete from cephalad. Postmarginal vein twice the length of the stigmal, three-fourths that of the marginal. Propodeum with a median carina and lateral carinae. Pronotum barely wider than long. *Sixth* segment of abdomen occupying more than the distal half of the surface, segment 2 deeply excavated at meson of caudal margin, exposing to view the extremely short third segment, the segments distad of 3 densely, pentagonally scaly, still denser on 6. Head and thorax finely, densely sculptured. Antennae 11-jointed, the club solid (though apparently obscurely 3-jointed). Funicle subcompressed, 7-jointed, the joints wider than long except the first; one large ring-joint which is slightly wider than long. Pedicel subglobate. Hind tibiae with two stout, unequal white spurs.

The specimen will be deposited into the collections of the United States National Museum as a type, and there should be several other males in the same collection but which I have not seen. (Accompanying the tagged specimens is a slide with first and third femora and the antennae.) The scape is darker above at tip. The front femur is distinctly swollen, obscurely denticulate beneath, more so above.

Geotaxis in Trichogramma minutum Riley (Hym.)

Once in 1904 I took a female of this species and placed it under a glass jar (10 x 10 cm.) over a clean sheet of white bristol board. The time was 5 P. M., and the jar was placed just in front of a window looking east and thus away from the direct source of light. The jar was nearly equally lighted on all sides. The insect immediately commenced to crawl up. After a second or two, the jar was inverted rather slowly but the upward motion of the insect continued, its course being gradually changed in a direction equal and opposite to that of the jar; thus, during the half revolution of the jar, the vertical movement of the *Trichogramma* was continued; when the jar

was half reversed, on its side, the insect was crawling up and around the side. When the reversal was complete, it was crawling toward the mouth of the jar and could easily have escaped. Obviously, its movements were geotactic. They were repeated as often as the jar was reversed. The side of the jar traversed was that turned toward the window.

This insect is often found on windows facing the light and then is always at the top of the pane, either resting there or else crawling upward as far as possible, falling down and repeating the same operation time after time. This is not only true for this species but for most of the species of its family, all or most of the Mymaridae and a very large number of other Chalcidoidea, Proctotrypoidea, Vespoidea, Apoidea and other Hymenoptera under similar conditions. A certain amount of positive phototaxis was also present, a turning toward greater brightness.

Diastrophus nebulosus (Hym.).

Galls of this species obtained at Annapolis, Maryland, March 17, 1901, were full of larvae; on April 8, the latter had pupated and emergence occurred late in April. Besides the cynipids *Ormyrus lobatus* Walker and a species of *Torymus* were reared, the identifications by Ashmead.

Trypeta solidaginis Fitch (Dip.).

A gall of this species taken from *Solidago* at Annapolis, Maryland, March 31, 1901, gave the adult on May the 9th following. The puparium is yellow, lighter between segments, that is the body is marked with alternating dark and lighter cross stripes. The gall measured over an inch. The adult was authoritatively identified by Coquillett.

Catolaccus Reared from a Gall (Hym.).

A species of *Catolaccus* was reared in May, 1901, from some cynipid gall on an unknown briar growing in a marsh at Annapolis, Maryland.

Cecidomyia farinosa Osten-Sacken in Maryland (Dip.).

About April 29, 1901, at Annapolis, I cut a twig containing a small yellow larva from a blackberry bush; the twig was swollen into an oval gall. The larva was taken out of the gall and placed into a watch glass, where it pupated on May 6 following; the pupa was yellow, turning to orange after several days and then to black when nearing ecdysis; the latter occurred on May 17 or after eleven days. Later, the galls were found to be common and usually to contain from three to four larvae. The species was identified by William H. Ashmead.

Polygnotus Not an Egg-parasite of Cecidomyia (Hym.).

In Entomological News, XIX, p. 352, Russell and Hooker record a proctotrypoid as parasitic upon the eggs of their *Cecidomyia foliora*. Mr. H. L. Viereck identified the parasites as *Polygnotus* and later sent them to me. From their size it would seem a physical impossibility for them to be true egg-parasites of the Cecidomyia.

A Note on Limenitus ursula (Lep.).

Several larvae obtained from wild plum (Annapolis, Maryland) on May 7, 1901, pupated on May 12, the butterflies emerging after ten and a half to eleven days.

A Few Notes on Lixus concavus Say (Col.).

At Annapolis, Maryland, the eggs of this species were very common in the stems of dock (*Rumex*), the third week in May, 1901. After some watching, the following observation was made on the manner of oviposition.* When first seen, the female was excavating a cavity into the plant with her jaws, her head toward the ground. After about forty minutes she turned hastily about, fitted the tip of the abdomen into the cavity and apparently without any exertion the egg was laid, occupying about five seconds; the cavity was then closed, but in what manner was not noted. The male was close by the whole time, usually upon the female's back, but not participating in the work. Some of the dock plants bore as many as four eggs. On January 7 a full-grown larva was encountered two and a half inches below the egg-scar; eggs were then still abundant. On June 26, at Blacksburg, Virginia, the adults were observed on cultivated rhubarb and later many egg-scars were found along the stems containing eggs; but in none of these infested plants could larvae ever be found. A gummy substance exuded by the rhubarb plant was often found over the egg-scar. On January 25 adults were observed mating.

Identification of Specimens.

The following desire to be added to the list of those willing to determine material from North America in their respective groups. (See this volume of the NEWS, pages 33, 35 and 85 for further information and for directions for sending specimens).

HEMIPTERA.—*Pentatomidae*: Dayton Stoner, Iowa City, Iowa; *Corixidae*: J. F. Abbott, Washington University, St. Louis, Missouri.

HYMENOPTERA.—*Pompilidae* and *Philanthidae*: Nathan Banks, East Falls Church, Virginia.

NEUROPTEROID INSECTS (except Odonata).—Nathan Banks, East Falls Church, Virginia.

[*See Ent. News XXIII, pp. 401 and 474. ED.]

ENTOMOLOGICAL NEWS.

PHILADELPHIA, PA., MARCH, 1915.

Reports of the Doings of Societies.

Some time ago a well-known entomologist stated that he considered the reports of the "doings of societies" in our entomological journals the least valuable part of the publications and that the space they occupied could be used to much better advantage for more important matter. We must confess that we had not previously looked upon these reports in that light, but on reflection came to the conclusion that, to a certain extent at least, he was correct.

Many of these communications, as published, are perfectly useless and convey no real information. They only cost money and waste valuable space. Their general type is something like this: Mr. X. made a communication *on the life history of certain Coleoptera and exhibited drawings of the early stages.* Mr. Y. *exhibited some curious Hemiptera from the Mountains of the Moon and spoke of their habits.* These communications led to a prolonged and general discussion among the members. Mr. Z. *exhibited specimens of Colias philodice which were more or less abundant during the season.* But why give examples—look into our journals and find plenty of things that waste good ink.

Even when they convey real information it is lost by the solid way of setting up the type. Each communication printed should be doubly leaded and the first word or two should begin in bold-faced type, and where possible the order of insects mentioned should be given. This would be of special advantage to the bibliographer who dislikes to wade through a lot of rubbish to get the essential thing. In addition, why should the man interested in a particular group of insects be compelled to wade through several pages of solid matter to find one or two things that he cares to read or wishes to record! It will be best to discontinue such methods and only publish statements that convey some knowledge of importance. Those verbal communications which are subsequently to be published should record facts of value, or, if only bare statements, they should not get beyond the "minute book."—H. S.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

Change of Address.

Harry B. Weiss *to* 242 Raritan Ave., Highland Park, New Brunswick, New Jersey.

Change of Address.

The undersigned begs to announce that the Imperial Plant Quarantine Station has been recently organized and established under the control of the Department of Agriculture and Commerce, with its headquarters in Yokohama; and that he has been appointed the Director and the Chief Inspector of the same. The undersigned at the same time holds, as formerly, the position as the Entomologist for the Imperial Agricultural Experiment Station, Nishigahara, Tokyo.

It is kindly requested that all communications, including those that hitherto have been accustomed to be addressed to the Imperial Agricultural Experiment Station, be forwarded to the new address. It is furthermore kindly requested that all publications on the subject of entomology, and also specially on the plant quarantine work, be forwarded to the changed address.

S. I. KUWANA, Director, Imperial Plant Quarantine Station, and Entomologist, Imperial Agricultural Experiment Station, Yokohama, Japan.

A Parasite of the Cottonwood Borer Beetle (Col., Dip.).

While studying the effects of poison baits on grasshoppers in a grove of cottonwood trees in western Kansas, in the summer of 1913, the writer was impressed by the large number of dead cottonwood borer beetles (*Plectodera scalator* Fab.). Dead beetles were found at the bases of the trees and on the ground at distances varying from one to three feet away.

The conclusion was drawn at once that they had been poisoned by the bran mash spread over the ground for the grasshoppers.

It was to test the validity of this conclusion that a large number of the living and dead were brought to the laboratory and a Gutzeit test for arsenic applied. This gave negative results but in preparing them we found them to be parasitized.

All the remaining beetles were placed in breeding cages and over 90 per cent. of the beetles were found to be parasitized by a fly identified by Mr. W. R. Walton as *Sarcophaga vericauda* Coq., heretofore reared only from grasshoppers. *P. scalator* Fab. is thus given as a new host for this dipterous parasite.—H. B. HUNGERFORD, The University of Kansas, Lawrence, Kansas.

Meetings in Los Angeles.

The present Exposition year 1915, with the attractions in San Francisco and San Diego, will doubtless see many visiting entomologists in California who may wish to become personally acquainted with some of the local people interested in natural history; so the following announcements of meetings in Los Angeles may be of interest:

The Entomological Club meets on the first Thursday evening of each month in the Music Room of the Los Angeles Public Library, 9th floor of the Metropolitan Building, 5th and Broadway, at 8 o'clock. All entomologists are especially invited to be present.

The Biological Section of the Southern California Academy of Sciences meets in the Lecture Room in the same building on the first Tuesday evening of each month.

The Lorquin Natural History Club meets on the first Friday evening of each month at the homes of members. Visitors would be interested in this association of young naturalists; and the members would greatly appreciate their presence. Particulars of the place of meeting may be had from the undersigned.—FORDYCE GRINNELL, JR., Southwest Museum, Museum Hill, Los Angeles, California.

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published.

All continued papers, with few exceptions, are recorded only at their first installments.

The records of systematic papers are all grouped at the end of each Order of which they treat, and are separated from the rest by a dash.

Unless mentioned in the title, the number of new species or forms are given at end of title, within brackets.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London.

For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

4—The Canadian Entomologist. **5**—Psyche. **7**—Bureau of Entomology, U. S. Department of Agriculture, Washington. **8**—The Entomologist's Monthly Magazine, London. **9**—The Entomologist, London. **15**—Biologia Centrali-Americana, Zoology, London. **16**—Ottawa Naturalist. **50**—Proceedings of the U. S. National Museum. **68**—Science, New York. **84**—Entomologische Rundschau. **89**—Zoologische Jahrbucher, Jena. **92**—Zeitschrift fur wissenschaftliche Insektenbiologie. **94**—"Das Thierreich," herausgegeben von d. Deutschen zoologischen Gesellschaft, Berlin. **97**—Zeitschrift fur wissenschaftliche Zoologie, Leipzig. **143**—Ohio Naturalist. **186**—Journal of Economic Biology, London. **189**—Journal of Entomology and Zoology, Claremont, Calif. **198**—Biological Bulletin of the Marine Biological Laboratory, Woods Hole.

278—Annales, Societe Zoologique Suisse et du Museum d'Histoire de Geneve, Revue Suisse de Zoologie. **324**—Journal of Animal Behavior, Cambridge. **355**—Smithsonian Institution Report, Washington, D. C. **411**—Bulletin of the Brooklyn Entomological Society. **447**—Journal of Agricultural Research, Washington. **477**—The American Journal of Tropical Diseases and Preventive Medicine, New Orleans. **496**—Memoirs, National Academy of Sciences, Washington. **497**—Zeitschrift fur angewandte Entomologie. Hrsg. K. Escherich u. F. Schwangart, Berlin. **498**—U. S. Public Health Service, Hygienic Laboratory, Washington.

GENERAL SUBJECT. Berlese, A.—Gli Insetti, Vol. II, Fasc. 9-10, pp. 241-304. **Buckland, J.**—The value of birds to man, **355,** 1913, 439-58. **Criddle, N.**—Popular and economic entomology. Some inhabitants of a sand plain in June, **4,** 1915, 24-30. **Johnson, J. W.**—A contribution to the biology of sewage disposal, Pt. II, **186,** ix, 127-164. **Kershaw, G. B.**—Formaldehyde useful in setting insects, **9,** 1915, 19-20. **Przibram, H.**—Experimental zoology, Pts. 3-5. [Leipzig und Wien. Franz Deuticke, 1910-1914.] **Sears, P. B.**—The insect galls of Cedar Point and vicinity, **143,** xv, 377-92.

PHYSIOLOGY AND EMBRYOLOGY. Hegner, R. W.—The germ-cell cycle in animals. [New York. The Macmillan Company, 1914.] 346 pp. **Kunneth, F.**—Die stigmenersorgung des insektenthorax, **97,** cxii, 70-92. **Loeb, J.**—The simplest constituents required for growth and the completion of the life cycle in an insect (Drosophila), **68,** xli, 169-70. **Painter, J. S.**—Spermatogenesis in spiders, **89,** xxxviii, Abt. f. Anat., 509-76. **Wieman, H. L.**—Observations on the spermatogenesis of the gall-fly, Dryophanta erinacei, **198,** xxviii, 34-46.

MEDICAL. Knab & Busck.—Mosquitoes and sewage disposal, **477,** ii, 333-38. **Liceaga, E.**—How war has been waged in Mexico against the mosquito, **477,** ii, 118-23. **McShane, A.**—The Phlebotomus papatach, the transmitter of the "Three days fever," **477,** i, 815-18. **Wheeler, W. M.**—Ants and bees as carriers of pathogenic micro-organisms, **477,** ii, 160-68.

ARACHNIDA, ETC. Emerton, J. H.—Geographical distribution of spiders in New England. [Appalachia], xiii, No. 2, 143-59. **Moles, M. M.**—Pseudoscorpions in the Claremont-Laguna region. [Chelanops serratus]; A new Pseudoscorpion from California [Atemnus hirsutus], **189,** vi, 187-97; 203.

NEUROPTERA, ETC. Waterston, J.—On two n. sps. of Mallophaga: Menacanthus balfouri and Myrsidea victrix, from Columbia, **8,** 1915, 12-16.

ORTHOPTERA. Davis, W. T.—A new sp. of Atlanticus from the mountains of Georgia and North Carolina [A. monticola], **411,** ix, 104-6. **Mann, W. M.**—(See under Coleoptera.)

HEMIPTERA. de la Torre Bueno, J. R.—Phototropism in Heteroptera, **411,** ix, 90-6. **Wildermuth, V. L.**—Three-cornered alfalfa hopper (Stictocephala festina), **447,** iii, 343-62.

LEPIDOPTERA. Glaser, R. W.—The bacterial diseases of caterpillars, **5,** xxi, 184-90. **Hasebrock, K.**—Ueber die entstehung des neuzeitlichen melanismus der schmetterlinge und die bedeutung der Hamburger formen fur dessen ergrundung, **89,** xxxvii, Abt. f. Syst., 567-600. **Prell, H.**—Die beteiligung des darms an der entfaltung der flugel bei schmetterlingen, **92,** x, 345-49. **Rattray, R. H.**—Notes on the larval and pupal stages in some of the Sesiidae, **9,** 1915, 9-12. **Saunders, A. P.**—The cotton worm moth, **68,** xli, 65. **Seitz, A.**—Topographie des schmetterlingsflugels, **84,** xxxi, 113-14.

Barnes & McDunnough.—A new genus and a n. sp. of L. from Arizona, **4,** 1915, 20-2. **Gibson, A.**—Notes on the preparatory stages of Proserpinus flavofasciata ulalume, **18,** 1915, 143-4. **Packard, A. S.**—Monograph of the Bombycine moths of North America. Part III. Edited by T. D. A. Cockerell. [Two new names.] **496,** xii, 276, pp. **Swett, L. W.**—Geometrid Notes—Revision of the genus Hydriomena, group with long palpi, **4,** 1915, 9-11 (cont.). **Walsingham, Lord.**—Lepidoptera, Heterocera [many new sps.], **15,** iv, 281-392.

DIPTERA. Bromley, S. W.—Asilids and their prey, **5,** xxi, 192-8. **Hewitt, C. G.**—The house-fly. Its structure, habits, development, relation to disease and control [Cambridge: at the University Press, 1914], 382 pp. **McDermott, F. A.**—Note on the reaction of the house-fly to air currents, **324,** v, 73-4.
..**Cockerell, T. D. A.**—A new dipterous gall on Stanleya [Perrisia stanleyae], **189,** vi, 240-1. **Felt, E. P.**—New genera and sps. of gall midges [2 new sps.], **50,** xlviii, 195-211. **Fox, C.**—Some new Siphonaptera [6 new species]; The taxonomic value of the copulatory organs of the females in the order Siphonaptera, **498,** Bul. 97, 7-17; 19-22. **Malloch, J. R.**—North American D. [4 new], **4,** 1915, 12-16. **Schmitz, H.**—Die myrmecophilen Phoriden der Wasmann'schen sammlung, **89,** xxxvii, Abt. f. Syst., 509-66.

COLEOPTERA. Barber, H. S.—Prothetely or semi-pupal stage in Lopheros fraternus, **5,** xxi, 190-2. **Chapman, R. N.**—Observations on the life history of Agrilus bilineatus, **447,** iii, 283-94. **Dow, R. P.**—The Russian masters in C., **411,** ix, 96-101. **Dury, C.**—

What I found under a pile of grass, **411,** ix, 101-3. **Riehn, H.**—Erfahrungen beim kodern von kaefern im winter, **92,** x, 328-21.

Hopkins, A. D.—Preliminary classification of the superfamily Scolytoidea, **7,** Tech. Ser., No. 17, 165-232. **Mann, W. M.**—Some Myrmecophilous insects from Mexico. [Orthoptera: 2 new names; Coleoptera: 7 new names; Hymenoptera: 5 new names]. **5,** xxi, 171-84. **Payne, O. G. M.**—Notes on Telephorus rufus and its varieties, **186,** ix, 165-8. **Spaeth, F.**—Coleopterorum catalogus, Pars 62: Chrysomelidae: 16, Cassidinae, 182 pp.

HYMENOPTERA. Cornetz, V.—Observations nocturnes de trajets de fourmis, **278,** xxii, 581-95. **Frisch, K. v.**—Der farbensinn und formensinn der biene, **89,** xxxv, Abt. f. Allgem. Zool., 1-183. **Strindberg, H.**—Zur kenntnis der hymenopteren entwicklung. Vespa vulgaris nebst einigen bemerkungen ueber die entwicklung von Trachusa serratulae, **97,** cxii, 1-47.

Beutenmuller, W.—Notes on the genus Rhodites, with descriptions of n. sps. [2 new], **411,** ix, 87-90. **Kieffer, J. J.**—Bethylidae; Serphidae (= Proctotrupidae) et Calliceratidae (= Ceraphronidae). [Bethylidae, 3 n. gen.; Calliceratidae, 2 n. gen.], **94,** Lief. 41, 42. **Mann, W. M.**—(See under Coleoptera.) **Schmiedeknecht, O.**—Die Ichneumonidengattung Pimpla, **497,** i, 396-78.

Doings of Societies.

NEWARK ENTOMOLOGICAL SOCIETY

Meeting of January 12, 1913, in Newark Free Public Library. President Buchholz in the chair, twelve members present. Mr. John Pfeuffer, of Irvington, was elected a member. Mr. Rummel mentioned taking a *Papilio turnus* form between *turnus* and *glaucus* in Elizabeth, August 5, and Mr. Brehme stated the fact that he saw moths flying at light in New Brunswick on Jan. 6. Mr. Lemmer stated that he had bred *Anomis erosa* from a larva found on hollyhock in Irvington about November 10. Mr. Grossbeck showed sixty interesting photographs of scenery taken by himself and Mr. Davis in Florida.

Meeting of February 9, 1913, in the Free Public Library. President Buchholz in the chair, fifteen members present.

Through Mr. Buchholz, Dr. R. E. Kuntze presented to the society eight papers on Entomology and other sciences.

Meeting of April 13, 1913, in the Free Public Library. President Buchholz in the chair, ten members present. Dr. Kuntze presented to the society a paper on Entomological Materia Medica, which was accepted with thanks. Mr. Doll reported capturing Noctuidae by beating oak branches which did not lose their leaves last fall. Mr. Rummel very kindly presented five volumes of Entomological News to the society.

Meeting of October 12, 1913, in the Free Public Library. Vice-President Henry H. Brehme in the chair, eleven members present, and Mr. Hampson a visitor. Mr. Rummel showed a box of moths, mainly *Papaipema*. Mr. Lemmer reported the capture of the following: *Acronycta radcliffei*, Orange Mts., May 4; *Cleora areataria* (Broadwell), Elizabeth, April 10; *Cleora indicataria*, Orange Mts., July 5; *Misogada unicolor*, Elizabeth, August 4; *Lophodonta ferruginea*, Elizabeth, June 22; *Amolita fessa*, Irvington, July 5; *Cucullia convexipennis*, Elizabeth, August 8; and *Epimecis virginaria* (two black males), Elizabeth, June.

Meeting of November 13, 1913, in the Free Public Library. Vice-President Henry H. Brehme in the chair, six members present. Mr. Rummel reported progress regarding the collection for the Newark Museum Association.

Meeting of December 14, 1913, in the Free Public Library. President Buchholz in the chair, eleven members present. Mr. Rummel showed six cases of insects arranged and labelled by him for the Newark Museum Association. Mr. Grossbeck was made a corresponding member. The following officers for the year 1914 were elected: President, Otto Buchholz, re-elected: Vice-President, Henry H. Brehme, re-elected; Secretary, Frederick Lemmer, re-elected; Financial Secretary, T.

David Mayfield, re-elected; Treasurer, Geo. J. Keller, re-elected; Librarian, Louis Doerfel, re-elected; Curator: Lepidoptera, Chas. Rummel, re-elected; Coleoptera and other Orders, Ed. Bischoff, re-elected; Trustee for three years, John Angelman.

Meeting of February 8, 1914, in the Free Public Library. President Buchholz in the chair, twelve members present. Mr. H. B. Weiss spoke on the insects taken on nursery stock imported into New Jersey during 1913 and on the small percentage of destructive forms in New Jersey considering the fact that 10,385 species are named in the New Jersey list.

Meeting of March 8, 1914, in the Free Public Library. President Buchholz in the chair, twelve members present. Through Mr. Brehme, Dr. Barnes presented to the society "Contributions to the Nat. Hist. of the Lepidoptera of N. America," Vol. I, Nos. 1-6, Vol. II, Nos. 1-4. Mr. Weiss presented a French publication on the Hemiptera. Mr. W. P. Holt was elected a member. Mr. Herman H. Brehme read an interesting paper on "Insects and Their Relation to Plants as Benefactors," and Mr. Weiss, a paper on "Three Imported Insects Occurring in New Jersey." He also showed Japanese hemlock leaves infested by *Aspidiotus tsugae* Marlatt.

Meeting of April 12, 1914, in the Free Public Library. President Buchholz in the chair, thirteen members present; visitor, Mr. Erhard, from Brooklyn. Mr. Rummel mentioned the taking of *Feralia jocosa* and *Copipanolis cubilis*, April, 1914. Mr. Weiss then spoke on "Old Ideas and Other Facts About Insects."

Meeting of November 8, 1914, in the Free Public Library. President Buchholz in the chair, seven members present. Mr. Rummel showed several caterpillars, especially *Apantesis virguncula*, and a box of Lepidoptera. Mr. Weiss showed all stages of the Florida Fern Caterpillar, *Callopistria floridensis*,

which was doing considerable damage to ferns in greenhouses at Riverton and Rutherford. He also mentioned the taking of a single male Gypsy moth at Rutherford on August 1, by M. H. Mead, of Passaic.

Meeting of December 13, 1914, in the Free Public Library. Vice-President Brehme in the chair, ten members present. The resignation of Geo. Franck, of Brooklyn, was accepted. Dr. Barnes, through Mr. Herman H. Brehme, presented to the society "Contrib. to Nat. His. of the Lep. of N. A.," Vol. 2, No. 5. Mr. Weiss spoke on the relations of insects to animals, mentioning the life histories of the different bot and biting flies. He showed specimens of some species particularly injurious to animals. The following officers were elected for the year 1915: President, Otto Buchholz, re-elected; Vice-President, Henry H. Brehme, re-elected; Secretary, Harry B. Weiss; Financial Secretary, T. D. Mayfield, re-elected; Treasurer, Geo. J. Keller, re-elected; Curator, Chas. Rummel, re-elected; Librarian, L. Doerfel, re-elected; Trustee for three years, Wm. Erhard.

FREDERICK LEMMER, *Secretary.*

AMERICAN ENTOMOLOGICAL SOCIETY.

Meeting of October 22, 1914. Dr. Calvert, President, in the chair; ten persons present.

Mr. Laurent presented specimens illustrating stages in the life-history of *Leucania unipuncta* (Lep.) and read notes on the appearance of the insect and discussed the methods of repelling it.

Mr. Rehn exhibited some very large and curious Phasmidae from New Guinea.

Mr. Hornig exhibited a mount showing the life-history of *Eriopus floridensis* (Lep.).

Mr. Laurent exhibited a female *Papilio* (Lep.) captured at Mt. Airy, Philadelphia, on July 30th of this year. The specimen approaches nearer to *Papilio glaucus* than it does to the

variety *turnus*. The scales on the wings are a mixture of both black and yellow, the black scales predominating. He also exhibited a male of *Pamphila campestris* (Lep.) captured at Mt. Airy, Philadelphia, on October 17th. The speaker stated that to the best of his knowledge this was the third specimen recorded from the vicinity of Philadelphia. The date of capture, October 17th, was unusual.

Mr. Williams discussed the value of genitalic characters in the genus *Lycaena* (Lep.) and exhibited drawings of the genitalia of a number of species.

Dr. Calvert exhibited colored drawings made from life showing the difference in the eye coloring of the dragonflies *Protoneura amatoria* and *Argia oenea* (Odon.).

E. T. CRESSON, JR., *Secy. pro tem.*

Meeting of December 12, 1914. Dr. Calvert presided; eight persons present.

The following were elected officers to serve for 1915: *President,* Philip P. Calvert; *Vice-President,* H. W. Wenzel; *Treasurer,* E. T. Cresson; *Curator,* Henry Skinner; *Librarian,* Ezra T. Cresson, Jr.; *Corresponding Secretary,* J. A. G. Rehn; *Recording Secretary,* Henry Skinner.

HENRY SKINNER, *Rec. Secy.*

ENTOMOLOGICAL SECTION, ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

Meeting of November 19, 1914. Mr. Philip Laurent, Director, presided; thirteen persons present.

Dr. Skinner exhibited an interesting aberration of *Argynnis aphrodite* (Lep.) taken at Cresco, Pa., August 2, 1914, by Mr. F. M. Jones. The upper side is largely melanic and the silver spots below coalesced.

Mr. Daecke spoke of finding a geometrid larva (Lep.) in great abundance at Hunters Run, Pa., on July 11. He supposed the species to be *Zerene catenaria* and said the larvae feed on oak, sassafras, willow, maple, Jersey tea, indigo, etc.

Dr. Calvert exhibited a slide of the reproductive organs of a

female cricket, and the spermatophore. The curious method of fertilization was described.

Mr. Laurent said the larvae of *Hemileuca maia* (Lep.), when full grown, are from 2¼ to 2¾ inches in length. The larvae he reared emerged as imagos in October.

Mr. Wm. C. Thompson was elected an Associate of the Section.

Meeting of December 12, 1914. Mr. Philip Laurent, Director, presided; eight persons present.

Mr. E. T. Cresson, Jr., spoke of the methods of separating some genera in Acalyptrate Diptera. Presence or absence of post-vertical bristles was found to be of absolute value to separate two genera.

The following persons were elected to serve as officers for 1915: *Director,* Philip Laurent; *Vice-Director,* H. W. Wenzel; *Treasurer,* E. T. Cresson; *Conservator,* Henry Skinner; *Secretary,* J. A. G. Rehn; *Recorder,* Henry Skinner; *Publication Committee,* E. T. Cresson and E. T. Cresson, Jr.

Meeting of January 28, 1915. Mr. Philip Laurent, Director, presided; twelve persons present.

Dr. Calvert described the differences in the dimorphic females of *Ischnura verticalis* Say (Odon.). (See February NEWS, pp. 56-68.)

Mr. Rehn made a few remarks on the species of the Orthopterous genus *Atlanticus,* all the forms of which were exhibited. An intensive study being made by the speaker and Mr. Hebard has brought out the fact that but a portion of the species were properly differentiated in the past. The important features found to be diagnostic of the species were discussed.

Mr. Williams said he had made some genitalic mounts of genera allied to *Lycaena* (Lep.) and considered the aedoeagus often showed good generic characters. He said some of the genera based on color, maculation and other slight differences were not valid.

H. SKINNER, *Recorder.*

EXCHANGES.

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☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued

Exchange—Californian butterflies for those from other parts of North America. Also want *N. terlooi.*—Victor G. Duran, 937 South Kenmore Ave., Los Angeles, Calif.

Wanted—Entomological News, Vol. II, Nos. 6 and 10, to complete files.—Address W. E. Britton, Agr. Exp. Station, New Haven, Conn.

For Exchange—Pupae of *Amp. versicolor, Dolba hylaeus, S. geminatus, P. achemon* and others, also Noctuidae and Geometridae from this locality.—Ernst Frensch, Stonington, Conn.

Cicindelidae—Wanted Cicindelidae of North America and Mexico. Please send lists. Correspondence desired with collectors in all parts of the country.—Edwin E. Calder, Longmeadow, Rhode Island.

Ipidae (Scolytidae)—Will exchange for eastern, northern or southern species the Pacific Coast species *Dendroctonus brevicornis, monticolae, jeffreyi, valens, Ips confusus, oregoni, emarginatus, concinnus, latidens, Pityogenes carinulatus, Phloeosinus punctatus, cupressi, Hylurgops subcostulatus,* etc.—Ralph Hopping, 114 Sansome St., San Francisco, Cal.

American and Exotic Butterflies and Moths wanted in exchange for others. Please send exchange lists to Joseph H. Reading, 1456 North Rockwell St., Chicago.

I have eggs of Nebraska *Catocala*, perfect specimens of Missouri *Catocala*, Nebraska and Pacific Coast Lepidoptera and botanical specimens for exchange for certain rare U. S. Lepidoptera.—E. A. Dodge, 546 Bay St. Santa Cruz, Calif.

Diptera—Unnamed material wanted. Will collect other orders in exchange.—C. F. Adams, Atherton, Mo.

For Exchange—Illinois and Indiana Coleoptera, mostly Cicindelidae, Carabidae, Buprestidae, Cerambycidae and others, for North American species new to my collection.—C. Selinger, 1338 South 50th Avenue, Cicero, Ill.

Wanted—Transactions American Entomological Society, Vol. IV; Entomological News, Vol. II, Nos. 6 and 10; Vol. VIII, Nos. 1 and 6; Vol. IX, Nos. 1 and 2; Vol. X, No. 10; Vol. XI, Nos. 1, 3 and 5. Will purchase at reasonable prices.—Howard L. Clark, Hotel Puritan, Commonwealth Ave., Boston, Mass.

Diptera—Wanted for cash or to borrow for study only, North American Leptidae (incl. *Coenomyidae* and *Xylophagidae*).—M. D. Leonard, Cornell University, Ithaca, N. Y.

Costa Rica—Any one interested in entomological material from Costa Rica should communicate with me at once. I expect to spend three months there this summer.—D. E. Harrower, Swarthmore, Pa.

Wanted—50 *V. huntera*, 100 *H. unipuncta*, 25 *A. argillacea, Arg. diana* 2 pair, *L. eros, L. hulstii, M. eurydice* males only, *M. yuccae, T. gundlachianus, T. proterpia, T. nicippe, L. sononensis, T. chrysalus, L. ursula* 6 of each = 3 pair, 8 of any *Chrysophanus.*—A. F. Porter, Decorah, Iowa.

For Exchange—Catocala from this locality for *Catocala* and other Lepidoptera not in my collection; also fertile ova of *Catocala amatrix* and *nurus.*—Mrs. O. F. Hiser, Nevada, Iowa.

Photographs of Entomologists Desired.

The Entomological Section of the Philadelphia Academy of Natural Sciences desires for its entomological album the photograph of every entomological student. The collection contains over 300 at this date. A list was published in the NEWS 1902, pages 45-47, of those in the album at that time. We hope that those who can do so will write their names and date of birth and the date when the photograph was taken on the back of each photo, along with any other information concerning themselves they may wish to impart.

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The interior is made of metal, with upright partition in center. On the sides are metal supports to hold 28 boxes. The regular size is 42½ in. high, 13 in. deep, 18⅝ in. wide, inside dimensions; usually enameled green outside. For details of Dr. Skinner's construction of this cabinet, see Entomological News, Vol. XV, page 177.

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